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NEPAL SEED AND FERTILIZER PROJECT

ANNUAL WORK PLAN YEAR I

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Acronyms and Abbreviations

4Rs	Right source, right rate, right time, right place
AfSIS	Africa Soil Information Service
AFU	Agriculture and Forestry University
AO	Agreement Officer
AOR	Agreement Officer's Representative
APSA	Asia Pacific Seed Association
ARS	Agricultural Research Station
AT+	AIDtracker Plus
AVRDC	World Vegetable Center (formerly Asian Vegetable Research and Development Center)
AWP	Annual Work Plan
BDS	Business Development Service
BSA	Bangladesh Seed Association
CBSP	Community-based seed producer
CC	Coordination Committee
CCR	CIMMYT Country Representative
CDCS	Country Development Cooperation Strategy
CDD	Crop Development Directorate
CEAPRED	Center for Environmental and Agricultural Policy Research, Extension and Development
CGIAR	Consultative Group on International Agricultural Research
CIMMYT	Centro Internacional de Mejoramiento de Maíz Y Trigo (International Maize and Wheat Improvement Center)
CSISA	Cereal Systems Initiative for South Asia
CTEVT	Council for Technical Education & Vocational Training
DADO	District Agricultural Development Officer
DCA	Development Credit Authority
DG	Director General
DO	(FTF) Development Objective
DOA	Department of Agriculture (Nepal)
EMMP	Environmental Mitigation and Monitoring Plan
EMP	Emergency Preparedness Plan
FAN	Fertilizer Association of Nepal
FAO	Food and Agriculture Organization (of the United Nations)
FDI	Foreign direct investment
FFP-CRP	Food for Peace Community Resilience Program
FFT	Farmer field trials
FNCCI	Federation of Nepalese Chambers of Commerce and Industry
FTF	Feed the Future
FTFMS	Feed the Future Monitoring System
FY	Fiscal year
G2G	Government to Government
GESI	Gender Equality and Social Inclusion
GLRP	Grain Legume Research Program

GON	Government of Nepal
GxExM	Genotype by environment by management (interactions)
HCRP	Hill Crop Research Program
HMRP	Hill Maize Research Project
HPRC	Hybrid Parents Research Consortium
HRD	Horticulture Research Division
HRDC	Hybrid Rice Development Consortium
HTMA	Heat Tolerant Maize for Asia
ICAR	Indian Council of Agricultural Research
ICARDA	International Center for Agricultural Research in the Dry Areas
ICRAF	World Agroforestry Center (formerly International Center for Research in Agroforestry)
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
IFDC	International Fertilizer Development Center
IMIC	International Maize Improvement Consortium
IPM-IL	Integrated Pest Management – Innovation Lab
IPNI	International Plant Nutrition Institute
IR	Intermediate Result
IRRI	International Rice Research Institute
ISF	International Seed Federation
ISFM	Integrated soil fertility management
ISTA	International Seed Testing Association
KISAN	Knowledge Based Integrated Sustainable Agriculture and Nutrition
M&E	Monitoring and Evaluation
ME&L	Monitoring, Evaluation and Learning
MIS	Management information system
MLT	Multi-location trial
MOAD	Ministry of Agricultural Development (Nepal)
MORCF	Market-Oriented Research Consultative Forum
MOU	Memorandum of understanding
NARC	Nepal Agricultural Research Council
NARS	National Agricultural Research System(s)
NGO	Non-governmental organization
NMRP	National Maize Research Program
NRRP	National Rice Research Program
NSAF	Nepal Seed and Fertilizer
NSAI	National Seed Association of India
NSB	National Seed Board (Nepal)
NSC	National Seed Company, Limited
NSSP	Nepal Strategy Support Program
OFD	On-farm demonstration
PAC	Project Advisory Committee
PBS	Population-based survey
PMC	Project Management Committee
PPP	Public-private partnership
PVS	Participatory varietal selection

QC/QA	Quality control/quality assurance
R&D	Research and Development
RARS	Regional Agricultural Research Station
RSTL	Regional Seed Testing Laboratory
SAARC	South Asian Association for Regional Cooperation
SARPOD	Socioeconomics and Agricultural Research Policy Division
SEAN	Seed Entrepreneurs' Association of Nepal
SHPE	Stakeholder participatory evaluation
SMD	Soil Management Directorate
SME	Small and medium enterprises
SMS	Subject matter specialist(s)
SPR	Seed production research
SQCC	Seed Quality Control Center
SSIS	Seed Sector Information System
STL	Seed Testing Lab
STRASA	Stress-Tolerant Rice for Africa and South Asia
Sub-IR	Sub-intermediate result
TPH	Tons per hour
TRP	Technology Refinement Platform
TSM	Troubleshooting module
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
USG	United States Government
VxMP	Variety by management practices
WBS	Work breakdown structure
ZOI	Zone of Influence

INTRODUCTION

This document, the Nepal Seed and Fertilizer (NSAF) project Year I Annual Work Plan (AWP), provides a narrative outline of the key activities and milestones expected to be achieved during the first year of implementation of the USAID-funded Feed the Future (FTF) NSAF project, for the period 1st April, 2016 – 31st March 2017. NSAF pursues fifteen Objectives; eight of which relate to seed value chain (the “Seed Component”) and aim to sustainably enhance access to elite and adapted seeds of rice, maize, lentil and high-value vegetables by systematically enhancing value through deploying suitable varieties, production of quality seed of such varieties and supply to farming community through efficient distribution and marketing networks. . The remaining seven Objectives compose the “Fertilizer Component” which aims to sustainably catalyze the adoption of integrated soil fertility management (ISFM) practices at scale through similar value chain approaches that integrate innovation with market development and entrepreneurship strengthening. These Objectives are aligned with the Nepal Country Development Cooperation Strategy (CDCS) as described in the Monitoring, Evaluation and Learning (ME&L) Plan and outlined below in this document. This AWP includes a third “component” composed of crosscutting activities related to ME&L and project coordination.

Project Activities and Sub-Activities are grouped according to the project Objectives to which they primarily contribute. For each activity, this AWP provides a brief narrative description, measurable progress benchmarks/milestones achievable within the AWP period (1 April 2016 – 31 March 2017)¹, required resources (staff time and budget) and dates of implementation. A detailed work breakdown structure (WBS) and baseline schedule is presented in Annex B: Project Year I Baseline .

PROJECT OVERVIEW

The goal of the Feed the Future (FTF) initiative is to sustainably reduce global poverty and hunger, and the FTF Nepal Seed and Fertilizer project is designed to contribute to that goal by aligning with the FTF Nepal multi-year strategy and the Mission’s Country Development Cooperation Strategy (CDCS). Specifically, the NSAF project goal is to build a competitive and synergistic seed and fertilizer value chains for inclusive and sustainable growth in agricultural productivity, business development, and income generation in Nepal. The project will operate primarily by improving the capacity of both the public and private sectors in their respective roles in development and dissemination of improved technologies related to seed and fertilizer.

¹ These benchmarks are principally for monitoring implementation progress and are not necessarily the same as the reporting indicators listed in Annex A: FY 2016 targets by indicator, which are the targets set to be achieved by the end of the current USAID fiscal year (30 September, 2016).

Crucially, the project also endeavors to increase collaboration between both sectors such that the private sector enterprises increasingly rely on government institutions as sources of innovation and knowledge and the public sector recognizes private sector partners as robust conduits for extending knowledge and new technologies.

NSAF fully integrates the primary FTF goal and CDCS Development Objective (DO) 2, which is Inclusive and Sustainable Economic Growth to Reduce Extreme Poverty. The Project specifically integrates FTF Intermediate Result (IR) 2.1 (Improved agricultural productivity), IR 2.2 (Small enterprises opportunities expanded), and 2.4 ((Economic growth policy and performance improved). NSAF is aligned with the priorities and approaches articulated by the Government of Nepal's (GON) recently approved Agricultural Development Strategy (ADS), the Seed Vision 2025, and the endorsed action plan that emerged from the Ministry of Agricultural Development's (MOAD) 'Seed Summit' in September, 2015.

The FTF Nepal Seed and Fertilizer project activities will focus on strengthening the rice, maize, lentil, and high-value vegetable value chains in the FTF Nepal Zone of Influence (ZOI) districts as well as five earthquake-affected districts. Although NSAF's impacts are likely to spill over into other parts of the country, project activities are focused in the FTF Nepal ZOI (Zone of Influence) districts. After the successive strong earthquakes that struck the central mid-hills region of Nepal in April and May of 2015, the United States Agency for International Development (USAID) expanded the FTF 'zone of influence' to incorporate several of the most affected districts. NSAF aligns with this decision by programming in these districts. The districts selected are the following:

- 6 districts in the Far-Western Region: Achham, Baitadi, Dadeldhura, Doti, Kailali, and Kanchanpur;
- 10 districts in the Mid-Western Region: Banke, Bardia, Dailekh, Dang, Jajarkot, Pyuthan, Rolpa, Rukum, Salyan, and Surkhet;
- 4 districts in the Western Region: Arghakhachi, Gulmi, Kapilvastu, and Palpa;
- 5 earthquake-affected districts (Sindhuli, Kavre, Makwanpur, Nuwakot, and Sindhupalchowk) in the Central Region.

PROJECT APPROACH

To achieve its goal of improving Nepal's seed and fertilizer value chains, NSAF will increase demand for new client-oriented and science-led innovations through market development and training. At the same time, NSAF will stimulate private investment that will drive success within and beyond the project lifecycle by engaging directly with potential investors and other private sector stakeholders. As a result, strengthened seed and fertilizer value chains will improve adoption of elite and adapted seeds and integrated soil fertility management technologies (ISFM) for a range of beneficiaries, including women headed households and socially disadvantaged

groups. By strengthening enterprises, economic benefits will also be generated for small business owners and sole entrepreneurs.

An enabling environment consisting of a supportive policy, legal and regulatory environment is a necessary condition for sustainable growth of the seed and fertilizer sectors. The policy and support services environment affects the entry of new businesses, growth and competitiveness of existing businesses, and determines access to better quality seeds and soil fertility enhancing technologies by farmers. Currently, there are a number of areas where reforms are necessary in order to facilitate/increase seed and fertilizer trade as well as promote the growth of seed and fertilizer sectors in Nepal. While these issues will be broadly addressed through existing USAID funded project implemented by the International Food Policy Research Institute (IFPRI), the FTF Nepal Seed and Fertilizer project will coordinate with IFPRI to address issues particularly related to the seed and fertilizer business-enabling environment. This project will complement IFPRI's policy work by strengthening seed and establishing fertilizer trade associations that will improve the business climate for investment.

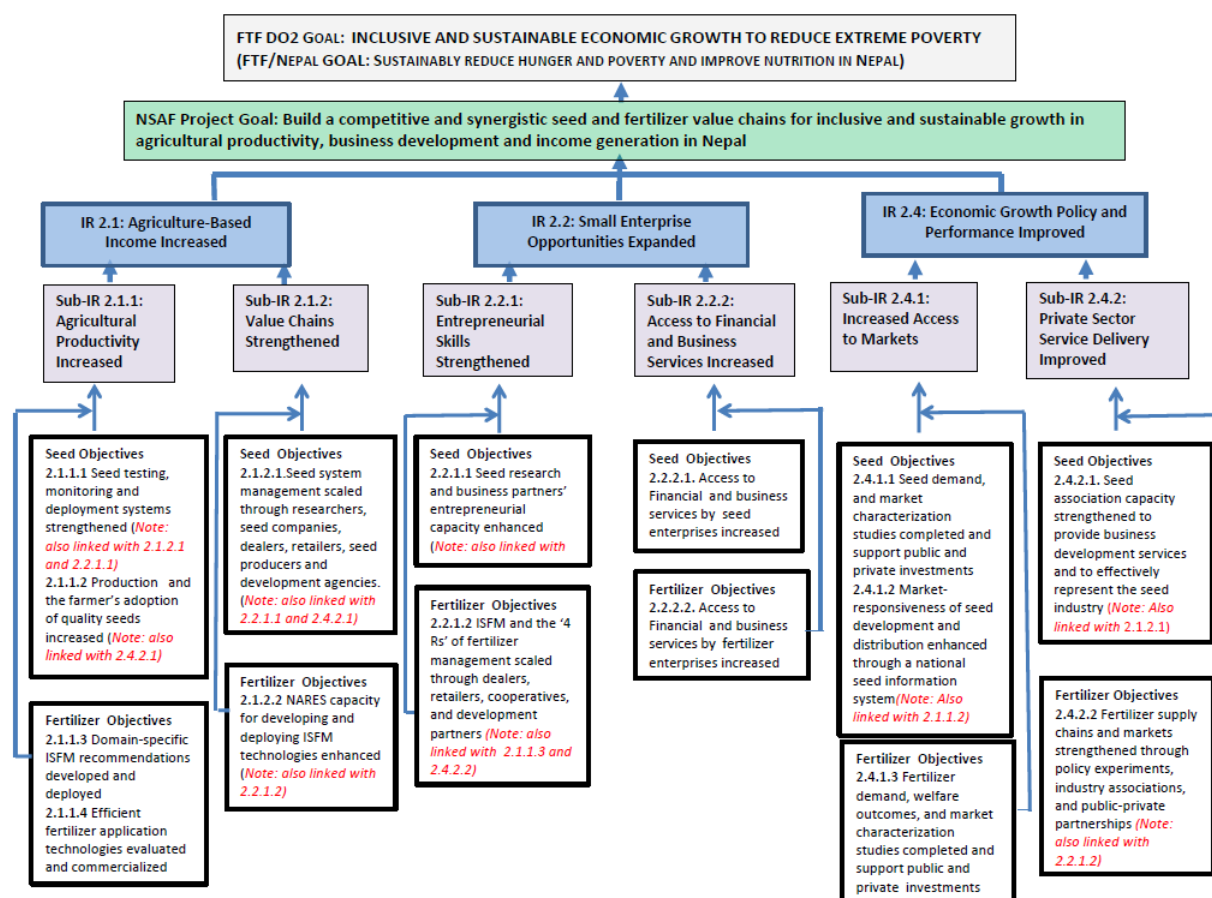
The project will be implemented by a consortium of partners, with the International Maize and Wheat Improvement Center (CIMMYT) having overall responsibility for coordination. In the seed sector, four institutions will lead crop-specific activities: International Rice Research Institute (IRRI) for rice, Nepal Agricultural Research Council (NARC) for lentils, Center for Environmental and Agricultural Policy Research, Extension and Development (CEAPRED) for vegetables (tomato, onion and cauliflower) and CIMMYT for maize. Crosscutting collaborations will be established with the commodity research programs and research stations of NARC, Seed Quality Control Center (SQCC), Crop Development Department (CDD), and the Department of Agriculture (DOA). Additional partners will include seed companies, non-governmental organizations (NGOs), and community-based seed producer groups (CBSPs).

Similarly for fertilizer, a host of national (e.g., NARC, Soil Management Directorate [SMD]) and international organizations (e.g. International Fertilizer Development Corporation [IFDC], International Plant Nutrition Institute [IPNI], and IRRI) will be core partners. In order to effectively reach women farmers and marginalized social groups, the project will also seek value-driven collaboration with USAID's development partners in Nepal (see p. 65, "Coordination with related initiatives") to raise awareness of and access to agricultural inputs and services among the project's target beneficiaries.

USAID is also making companion investments to strengthen the seed and fertilizer system through a Government-to-Government (G2G) funding mechanism with MOAD. NSAF Project Management team has initiated discussions with MOAD departments for collaborative activities. The formation of an inclusive project management and advisory committee will ensure strong coordination among partners.

The project's results framework (see Figure 1) illustrates how the project's fifteen Objectives contribute towards the FTF Sub-Intermediate Results (Sub-IRs), Intermediate Results (IRs), Project Goal, and FTF DO2 Goal.

Figure 1: FTF NSAF Results Framework



SEED SECTOR STRATEGY

The Seed Component will build a sustainable seed system by enhancing the capacity of public and private sectors on market-oriented variety development (including hybrids), technologies for quality seed production, and seed business development. A foundational component of this approach will be facilitation of public-private partnerships that link national champions with international research organizations and businesses. The project will develop a platform for collaborative tripartite research by NARC, relevant members of the Consultative Group for International Agriculture Research (CGIAR) institutions, and private seed companies. Moreover, it will strengthen local seed production capacity, by identifying suitable geographies for seed production, seed producers' network and strong linkages with the market.

The success of the seed system component of the NSAF project depends on the following assumptions that underpin the seven Seed Objectives:

- Through capacity development and strategic collaborations with international research and development (R&D) institutions, NARC and seed company partners can adopt new market-oriented research and business approaches to effectively deploy improved crop (rice, maize, lentil and high-value vegetables) varieties acceptable to the farmers, and augment seed supplies towards higher yields and higher profitability at the farm level.
- Significant efficiency in the seed systems can be achieved by strengthening the capacity of public and private sector actors in technology development and dissemination, seed production and seed marketing for sustaining the benefits to farming community in Nepal.
- Seed production and quality assurance training, technology demonstrations, and market development efforts will enhance the supply and demand for quality seeds in Nepal.
- Coordinated advocacy by industrial associations would create a conducive environment for policy support, financial investment and business collaboration.

FERTILIZER SECTOR STRATEGY

The ISFM component (henceforth referred to as the “Fertilizer Component”) is predicated on four related assumptions and areas of activity. First, the project will work with the National Agricultural Research and Extension System (NARES) partners (e.g. NARC’s Soils Division and the Soil Management Directorate [SMD]) to develop new soil fertility management recommendations that are efficient, scalable, and suited for different types of farmers. Second, the project will work to commercialize precision fertilizer application technologies that will form the basis of new small businesses. Third, the FTF Nepal Seed and Fertilizer project will work with the Department of Agriculture along with fertilizer importers/retailers and cooperatives to generate awareness of the yield and economic value of ISFM technologies, thereby building demand for high-quality fertilizers and the capacity of the private sector to deliver them. Training in the ‘4Rs’ of nutrient stewardship (i.e. right source, right rate, right time, right place) will underpin this approach. Lastly, the project will support MOAD to explore opportunities for ‘crowding in’ private sector investments in fertilizers by restructuring existing fertilizer subsidy programs.

The success of the fertilizer sector strategy of the project hinges therefore on the following four core assumptions:

- Through capacity development and strategic collaborations with advanced institutions, NARES partners can adopt new research approaches and devise practical recommendations for integrated soil fertility management that are scalable in Nepal context, leading towards higher yields and higher profitability at the farm level.
- Significant gains in fertilizer use efficiency can be achieved with commercialization of affordable and precise application technologies.
- Fertilizer dealer training, technology demonstrations, and market development efforts will increase the supply and demand for quality fertilizers in Nepal.

- By re-structuring government support programs to subsidize farmer participation in markets, private sector investments in fertilizer import, distribution, and quality control systems will increase.

These assumptions underpin the formulation of the project's seven Fertilizer Objectives that will catalyze the sustainable adoption of integrated soil fertility management (ISFM) practices at scale in the FTF zone and among selected earthquake-affected districts in Nepal.

YEAR I PLANNED ACTIVITIES

The following section provides a description of each of the activities planned to be carried out during Year I of the project, from 1st April 2016 to 31st March 2017. Please note that the Activities and Sub-Activities to be implemented in the current AWP period are detailed here and those to be implemented in the coming years have only been listed. Refer to Annex B: Project Year I Baseline for a more detailed WBS with planned dates of implementation. Targets for the current USAID Fiscal Year (through 30 September, 2016) are provided in Annex A: FY 2016 targets by indicator, while the benchmarks listed for each activity below are expected to be achieved by the end of this AWP period (1st April 2016 – 31st March 2017). Annex D: Year I Budget includes details regarding the planned operational budgets for the current AWP period, and Annex E: Year I Subgrant Details links the planned subgrant budget to the associated Activities.

IR 2.1: AGRICULTURE-BASED INCOME INCREASED

SUB-IR 2.1.1: AGRICULTURAL PRODUCTIVITY INCREASED

SEED OBJECTIVE 2.1.1.1: SEED TESTING, MONITORING AND DEPLOYMENT SYSTEMS STRENGTHENED (*NOTE: THIS IS ALSO LINKED WITH SEED OBJECTIVE 2.1.2.1 AND 2.2.1.1*)

Geographical Information System (GIS) data and available data on weather, water source, present cropping pattern and market access will be collected and used to fine map the target districts, in terms of agro- ecological zones, cropping and market potential. Based on interactive session, on agro- climatic situations, major production constraints (biotic and abiotic) and using fine maps of target region, the crop-wise market segments will be identified, product portfolios will be defined for such segments, to identify and prioritize traits and products to be tested and deployed.

ACTIVITY 2.1.1.1.1: FINE-MAP TARGET REGIONS IN NEPAL (IN TERMS OF AGRO-ECOLOGICAL ZONES, CROPPING SYSTEMS, AND MARKET POTENTIAL)

Target areas of the project are mainly Terai, river valley, low hills and mid-hills. The target crops are grown in summer, winter and/or spring seasons and using both solo and intercrop farming systems. The GIS data and other available data on the weather, water source, present cropping patterns and market access will be collected and used to fine-map the target districts, in terms of agro-ecological zones, cropping systems, and market potential. Based on interactive sessions on agro-climatic situations and major production constraints (biotic and abiotic), crop-wise market segments will be identified using fine-mapping of the target regions.

Over the course of the 2016-2017 AWP period, the project will:

- 2.1.1.1.1.1 Generate a GIS extrapolation of the target agro-ecological zones;
- 2.1.1.1.1.2 Map out the prevalent cropping systems;
- 2.1.1.1.1.3 Map out the seed market potential for target crops; and
- 2.1.1.1.1.4 Identify the key market segments for target crops.

Benchmark(s): 3 agro-ecological zones in target districts mapped using at least 5 different variables

Activity lead: Seed Systems Lead,

Key project staff: Lead Socio-economist

Key collaborators: NARC, IRRI

Location(s): Kathmandu

Dates: 1 Jun 2016 – 31 Dec 2016

ACTIVITY 2.1.1.1.2: CHARACTERIZE MARKET SEGMENTS AND DEFINE PRODUCT PORTFOLIOS

Using information gathered under 2.1.1.1.1, three key market segments for cereal crops and two key segments each for lentils and vegetables will be shortlisted for defining product portfolio for each segment, and for targeted product deployment.

Over the course of the 2016-2017 AWP period, the project will:

- 2.1.1.1.2.1 Characterize the key market segments for the target crops identified in the target agro-ecologies; and
- 2.1.1.1.2.2 Define a product portfolio for each market segment, including varietal selection indicators.

Benchmark(s):	14 product portfolios will be defined (one for each market segment, including 3 each for rice and maize and 2 each for lentils and target vegetable crops)
Activity lead:	Market Development Specialist,
Key project staff:	Seed Systems Lead
Key collaborators:	NARC, IRRI, CEAPRED, Seed Partners
Location(s):	Kathmandu
Dates:	1 June 2016 – 28 February 2017

ACTIVITY 2.1.1.1.3: CONDUCT TESTING OF TECHNOLOGIES IN PHASE I (TRPs AND MLTs)

The project will support NARC and the private sector to demonstrate and evaluate their products head-to-head (including pre-commercial and released hybrids/OPVs) to the project partners and stakeholders, including farmers. These, along with the sourced germplasm from other international sources, will be evaluated for their *per se* performance, abiotic and biotic stress tolerance, and other prioritized traits defined in the market segment product portfolios (see Activity 2.1.1.1.2) at the TRPs (see Activity 2.1.2.1.2). The TRPs will serve as representative sites for selecting suitable technologies for deployment and scaling-out. The top 20-25 best-bet hybrids/varieties will be shortlisted for the next stage of testing (Multi-Location Trials, or MLTs). Promising hybrids and OPVs of the target crops (sourced under Activities 2.1.2.1.3 and 2.1.2.1.4) will be evaluated, based on the level of available information and as per regulatory provisions, for fast-tracking scale-up and deployment. Ten SMEs (selected as partners in the project based on their seed business capacity, active involvement in HMRP and CSISA, and geographical location) will conduct MLTs. Three NARC research centers, namely RARS Doti, the Agricultural Research Station (ARS) in Surkhet and the Hill Crop Research Program (HCRP) in Kabre, Dolakha, will also conduct MLTs. The project will work with the National Seed Board (NSB) to simplify and fast-track variety release, and will be active in the registration process by providing required technical data and documents.

Over the course of the 2016-2017 AWP period, the project will:

- 2.1.1.1.3.1 Evaluate improved pre-commercial/released hybrids/OPVs from diverse sources at TRPs based on varietal selection indicators defined for product portfolios;
- 2.1.1.1.3.2 Conduct joint monitoring of the trials and report on the best-bet hybrids/OPVs in specific target crops/agro-ecologies;
- 2.1.1.1.3.3 Select the top 20 best-bet hybrids/OPVs for MLT stage of testing; and
- 2.1.1.1.3.4 Conduct 5 MLTs of varieties for each market segment.

Benchmark(s):	At least 84 hybrids / varieties (6 hybrids / varieties for each of 14 defined market segments) in Phase I (under research) (see FTF Indicator 4.5.2[39])
Activity lead:	Seed Systems Lead,
Key project staff:	Trial Agronomists, Market Development Specialist
Key collaborators:	NARC, NSC and 10 chosen seed companies,
Location(s):	TRP sites (Nepalgunj, Kumaltar, Siddhara) plus 15 districts / locations to be identified for MLTs by partners (NARC and seed partners)
Dates:	1 Nov 2016 – 31 Mar 2017

ACTIVITY 2.1.1.1.4: LARGE-SCALE TESTING OF HIGH POTENTIAL TRP TECHNOLOGIES IN TARGET ECOLOGIES IN PARTICIPATORY MODE (PHASE II)

Recent business diagnostics of seed SMEs undertaken by the CSISA project, in addition to other sources of information, identified that the seed SMEs in Nepal are not actively engaged in the varietal development process carried out by NARC. This is a missing element of capturing end-user preferences in participatory varietal selection processes. Since linking trade to the variety development process is critical for seed industry growth, the project will work closely with NARC to improve the design and implementation of its adaptive trials and introduce a varietal selection process for identifying promising new varieties of rice, maize, lentil, and high-value vegetables. The selection process will take into account varietal and trait preferences of the farmers (especially women), industrial and other end users. Joint monitoring, by all stakeholders, will be an essential feature of the trialing system.

Rapid deployment of identified hybrids/OPVs will be attempted by involving seed partners (both public sector and private sector) at all trialing stages and in decision-making. Selected best-bet hybrids/OPVs within or across the market segments will be taken forward for stakeholder participatory evaluations (SHPEs) across several locations. The best-bet hybrids and OPVs (about 6-8) will be selected for each target environment to the next level on-farm testing (FFT) in minimum of 20-25 locations across the target districts, involving NARC, seed partners, NGOs and DADOs, adopting a non-replicated strip trial (head to head) protocol. High weightage will be given to farmer's feedback (including both women and men farmers) and preference on hybrid/OPV performance. The top 2 to 3 farmer-preferred hybrids/OPVs will undergo on-farm/front-line demonstrations (OFDs) in larger plots (100m²) across 50 to 100 different locations. These demonstrations will include popular commercial hybrids for comparison, and involve NARC, seed company partners, NGOs, DADOs etc. The large-scale testing of promising pre-commercial hybrids/OPVs will help fast-track variety release and registration process and achieve broader awareness of technologies ripe for dissemination, by involving national NGOs working within community-based seed systems.

The following activities will begin in FY2017.

- 2.1.1.1.4.1 Conduct FFT at 20 locations per market segment, involving NARC, Seed partners, NGOs, DADOs.
- 2.1.1.1.4.2 Joint monitoring of 25% trials and report on selected Varieties
- 2.1.1.1.4.3 Select the best 1 hybrids/varieties for on-farm demonstrations (OFD)
- 2.1.1.1.4.4 Conduct OFD at 50 locations per segment involving NARC, Seed partners, NGOs, DADOs etc.
- 2.1.1.1.4.5 Joint monitoring of 10% trials and report on selected Varieties
- 2.1.1.1.4.6 Conduct Field days at 10% OFD locations

ACTIVITY 2.1.1.1.5: RELEASE & DEPLOYMENT OF TECHNOLOGIES

The NSAF-PPP Coordination Cell at NARC will facilitate application for product allocation and licensing of the best-bet, stakeholder-preferred pre-commercial hybrids/OPVs for each segment to identified public or private sector partners for registration or national release and scaling-out in targeted regions. The process for official registration and release of cultivars will be facilitated through NARC and SQCC. OPVs will be deployed both through formal channels (seed companies) and informal channels (CBSP/NGOs) following the HMRP/CSISA model of deployment.

The following activities will begin in FY2018.

- 2.1.1.1.5.1 Allocate/license varieties to national program/seed company partners for
- 2.1.1.2.5.2 Submission of proposal for Registration/ release of cultivars

ACTIVITY 2.1.1.1.6: CONDUCT SEED PRODUCTION RESEARCH ON THE PARENTS OF BEST-BET HYBRIDS AND SCALING-UP SEED OF IDENTIFIED OPVs

Seed producibility is a key selection criterion for the hybrid products and is of particular interest to the seed companies, as it relates to the cost of producing the hybrid seed and, therefore, affects its economic viability in the market. Hence, parental lines of hybrids under FFT will be evaluated for their seed producibility, female-male synchronization and seed quality at 2 to 3 selected sites. This research will be conducted during the course of multiplying the seed required for different testing stages and deployment. All seeds for pre-commercial hybrids for different trials will be obtained from the originating center.

Seeds of pre-release OPVs included in the testing process will be multiplied, separately, following standard procedures, for the next stage of testing. The source seed (breeder and foundation seed) of pre-release OPVs at FFT and OFD stage will be produced in the required quantity, to scale up the seed of eventually identified/released OPVs for large-scale deployment.

Over the course of the 2016-2017 AWP period, the project will:

2.1.1.1.6.1 Scale up identified OPV seed for trials (multiply the seed of selected OPVs for MLT and FFT, and breeder seed of selected OPVs in FFT)

Benchmark(s): Sufficient seed of identified OPVs available for trials

Activity lead: Seed Systems Lead

Key project staff: Seed System Officer

Key collaborators: NARC, seed partners

Location(s): Nepalgunj, Siddhara

Dates: 1 October 2016 – 31 March 2017

ACTIVITY 2.1.1.1.7: TESTING OF GERMLASM/PARENTAL LINES

To sustain the activity of hybrid development by NARC and seed companies as well as to take full advantage of the tripartite platform, the sourced parental lines in the target crops will be evaluated for their combining ability, abiotic and biotic stress resilience and other prioritized portfolio traits, to identify elite parental lines for developing a pipeline of hybrids suitable for the target agro-ecologies.

The following activities will begin in FY2017.

2.1.1.1.7.1 Evaluate parental lines for combining ability, abiotic and biotic stress resilience and portfolio traits,

2.1.1.1.7.2 Select ten elite parental lines and distribute for developing new hybrids

SEED OBJECTIVE 2.1.1.2: PRODUCTION AND THE FARMER'S ADOPTION OF QUALITY SEEDS INCREASED (*Note: this is also linked with Seed objective 2.4.2.1*)

Timely availability, affordability, and accessibility of quality seed are key for sustaining the advantages of new technological interventions. For this, networks among national seed corporations, seed companies and community-based seed production groups need to be strengthened.

ACTIVITY 2.1.1.2.1: MAPPING OF SUITABLE SEED PRODUCTION AND PROCESSING ZONES FOR TARGET CROPS

Suitable location(s) for seed production of target crops, based on climatic suitability and economic competitiveness, need to be identified for building a strong seed system in Nepal. The project will conduct a fine-mapping exercise of Nepal's mega-environments to identify suitable areas and seasons for seed production (in terms of climatic suitability and economic competitiveness) using GIS extrapolation studies. Further refinement and validation of

recommendations will be done based on pilot testing and economic analysis. A similar exercise will also be done to identify suitable seed processing areas. The areas thus identified will be targeted for local as well as custom seed production and processing.

Over the course of the 2016-2017 AWP period, the project will:

- 2.1.1.2.1.1 Fine-map mega-environment of Nepal to identify suitable, areas and seasons for seed production of hybrid maize, rice, and vegetables, and OPVs of lentil, rice, maize and vegetables.

Benchmark(s): Seed production regions and processing sites identified and documented

Activity lead: Parvesh Chandana, IRRI

Key project staff: Seed Systems Lead, Seed Systems Officer

Key collaborators: NARC, Seed partners

Location(s): Kathmandu, New Delhi

Dates: 1 August 2016 – 31 March 2017

The following activities will begin in FY2017.

- 2.1.1.2.1.2 Validate the perspective zones based on pilot testing and economic analysis.

- 2.1.1.2.1.3 Publish recommendation on seed production zones in Nepal

ACTIVITY 2.1.1.2.2: IMPROVING THE CAPACITY OF SEED PROCESSING FACILITIES AND STORAGE STRUCTURES

Recent business diagnostics of seed SMEs by CSISA also indicated that most SMEs have low-capacity seed graders and seed storage structures, which present a bottleneck for further growth. NSAF will provide only technical support to MOAD/DOA to develop required infrastructure, at least one each in the target Developmental Regions by any suitable mechanism (e.g., bank guarantee or subsidized financial support). Required equipment includes a grader with a 2 ton-per-hectare (TPH) capacity, gravity separator, seed treater, automatic weighing machine etc. As this is critical for the success of the project, NSAF will work with MOAD / DOA through the G2G mechanism for this activity.

Over the course of the 2016-2017 AWP period, the project will:

- 2.1.1.2.2.1 Provide technical support to CDD to establish and maintain adequate seed processing and seed storage facilities under G2G funding; and
- 2.1.1.2.2.2 Provide training to CDD staff on seed processing and storage.

Benchmark(s): Machinery and storage structures are upgraded according to technical specifications (through G2G); seed processing and storage checklist developed; 50 individuals trained

Activity lead: Seed Systems Lead

Key project staff: Seed Systems Officer

Key collaborators: CDD, MOAD

Location(s): 25 FTF target districts

Dates: 1 Aug 2016 – 31 Mar 2017

ACTIVITY 2.1.1.2.3: STRENGTHEN BREEDER AND FOUNDATION SEED CAPACITY IN TARGET CROPS

The business diagnostics of seed SMEs by CSISA also suggested that the source-seed linkages between NARC and SMEs need to be strengthened by pre-registration, as is done in India, through a nodal agency like Seed Entrepreneurs' Association of Nepal (SEAN). The new seed regulation of 2013 also has a provision for foundation seed production and supply by private industry. Technical support will be given to approved agency or agencies identified by SQCC for production and supply of quality breeder and foundation seed to the private seed enterprises. NSAF will provide capacity building of the approved agency/agencies in maintenance breeding and quality control. NSAF will provide technical support to MOAD/DOA to develop required mechanisms and infrastructure through the G2G mechanism, at least one each in the target Developmental Regions by any suitable mechanism (like a revolving fund, bank guarantee or subsidized financial support).

Over the course of the 2016-2017 AWP period, the project will:

- 2.1.1.2.3.1 Provide technical support to SQCC to establish processes for sustainable production of source seed of pre-released and newly released varieties, under G2G funding.

Benchmark(s): At least 50% increase over baseline in capacity of Nepalese suppliers of good-quality breeder and foundation seed

Activity lead: Seed Systems Lead

Key project staff: Seed Systems Officer

Key collaborators: SQCC

Location(s): Kathmandu

Dates: 1 Aug 2016 – 31 Mar 2017

ACTIVITY 2.1.1.2.4: STRENGTHENING OF INTERNATIONAL SEED TESTING ASSOCIATION (ISTA)-ACCREDITED QUALITY CONTROL LAB UNDER SQCC/RSTL UNDER CDD

SQCC is mandated to monitor seed quality standards in all seeds produced in Nepal by public, private and community-based producers. However, the capacity of SQCC to fully, effectively and efficiently discharge its responsibility is seriously constrained by a lack of qualified manpower, resources and physical facilities. NSAF will work with the SQCC to strengthen its program to register and deploy private seed quality inspectors or certifiers across the country. Technical assistance and capacity building will be directed to these government agencies (SQCC/DOA) to increase the quality, efficiency and timeliness of their operations in seed quality assurance. The project will provide technical support to SQCC to strengthen the current ISTA lab. Similarly, required technical support will be provided to CDD to strengthen existing Regional Seed Testing Labs (RSTL), and in developing at least one fully-equipped Seed Testing Lab (STL), in each of the target developmental regions. The project will support existing national authorities to enhance a seed quality assurance management system.

Over the course of the 2016-2017 AWP period, the project will:

- 2.1.1.2.4.1 Provide technical support to SQCC and CDD as it strengthens its seed quality assurance facilities (equipment and infrastructure) under G2G funding; and
- 2.1.1.2.4.2 Provide training to staff of SQCC and CDD on QC/QA (quality control/quality assurance), besides efficient use and maintenance of seed quality control facilities.

Benchmark(s): At least 20% increase over baseline in number of seed samples tested in the RSTLs; at least 50 individuals trained on seed quality (QC/QA).

Activity lead: Seed Systems Lead

Key project staff: Seed system Officer

Key collaborators: SQCC, DOA

Location(s): Kathmandu

Dates: 1 August 2016 – 31 March 2017

FERTILIZER OBJECTIVE 2.1.1.3: DOMAIN-SPECIFIC ISFM RECOMMENDATIONS DEVELOPED AND DEPLOYED

There is considerable heterogeneity of soil, management, and site factors that make it impossible to derive 'general' fertility management recommendations on a crop basis for the whole of Nepal, especially from experiment stations where the land use history is often

radically different from farmers' fields. On the other hand, efforts to develop field-specific recommendations have failed in almost every case because they are either too costly or because there is no way to efficiently scale them to farmers. In this project, we seek intermediate solutions that will be more precise than general recommendations but also readily scalable through agro-dealers, cooperatives, and development partners.

ACTIVITY 2.1.1.3.1: IDENTIFY AND CHARACTERIZE REFERENCE SITES FOR SOIL, CROPPING SYSTEM, FARMER MANAGEMENT, AND SOCIOECONOMIC FACTORS

By combining ground reconnaissance with remotely sensed information, representative reference locations will be established across the FTF districts based on the combination of soil and cropping system considerations. Depending on the diversity of circumstances within each district, 2 to 4 reference locations will be established and characterized for soil, cropping system, farmer management, and socioeconomic factors. These sites will provide the area of emphasis for on-farm research as well as for the recurrent surveys of fertility practices and fertilizer sales that will compose part of proposed market information system.

Benchmark(s):	Sites identified and characterized for biophysical and socio-economic factors
Activity lead:	Fertilizer Lead
Key project staff:	Socio-economics Lead, GIS specialist
Key collaborators:	NARC
Location(s):	FTF Districts (12 districts completed in Y1)
Dates:	1 Oct 2016 – 31 Mar 2017

ACTIVITY 2.1.1.3.2: CONDUCT ON-FARM EXPERIMENTS FOR NUTRIENT (MACRO, SECONDARY, AND MICRO) AND LIME RESPONSES AT REFERENCE SITES

In four farmers' fields at each reference location, the following crop-specific treatments will be implemented with each farmer's field constituting a replicate:

- 3 omission treatments (N, P, K) to assess indigenous soil fertility stocks
- 1 nutrient sufficiency treatment (full NPK, + lime, + micronutrients) to establish yield potential with better-bet agronomic management
- 1 nutrient sufficiency treatment (full NPK, + lime, + micronutrients) to establish yield potential with farmer management practices
- 1 nutrient sufficiency treatment (full NPK) to establish yield potential with better-bet agronomic management when micronutrients and lime are omitted

Additional treatments will be included to discern economically optimal fertilizer rates as a function of applied nitrogen. At a sub-set of reference locations, crop response trials to added nutrients will be conducted with the most promising cultivars (pipeline or released) identified

by the seed component of this project to assess “genotype by environment by management” (GxExM) interactions for the purpose of further refining ISFM recommendations. In all cases, the implications of optimal residue, compost management and cultivar choice will be considered as factors in rationalizing fertilizer inputs.

As experiment results are compiled and are translated into practical recommendations, participatory on-farm verification trials will be conducted in 2017 with revised recommendations contrasted with current farmer nutrient management practice and established state recommendations for yield, economic performance, and farmer perceptions.

Benchmark(s):	Rice and maize field trials completed, including data summaries and implications for recommendations clearly distilled
Activity lead:	Fertilizer Lead
Key project staff:	Fertilizer Field Coordinator
Key collaborators:	IPNI, IRRI, NARC
Location(s):	Two hill districts (Dang, Surkhet) and four Terai districts (Banke, Bardiya, Kailali, Kanchanpur) for rice and wheat in the Terai sites, and maize in the hills
Dates:	1 April 2016 – 31 Mar 2017 (field trials already established)

The following activities will start from FY 2017

Activity 2.1.1.3.3: Spatial patterns of indigenous soil fertility and crop responses to fertilizers evaluated for recommendation domain delineation

Activity 2.1.1.3.4: Yield prediction (e.g. satellite, 'factor'-based, and weather forecast) methods assessed for 'fine tuning' domain-based recommendations

Activity 2.1.1.3.5: Scenario analysis conducted to refine recommendations based on farmer resource endowments, risk, and investment preferences at nested scales

Activity 2.1.1.3.6: Participatory on-farm validation of domain-based fertility recommendations, including GxExM (refine based on SEED screening trial results)

Activity 2.1.1.3.7: Simple, multi-media extension messages and materials developed for different farmer groups including women

Activity 2.1.1.3.8: The importance of micronutrient fertilization for crop quality determined for tomato and cauliflower

OBJECTIVE 2.1.1.4: EFFICIENT FERTILIZER APPLICATION TECHNOLOGIES EVALUATED AND COMMERCIALIZED

Initial testing by the CSISA project for wheat suggests that precision fertilizer placement can increase crops yield by 10 – 30% percent with the same fertilizer rate. This project will verify

the value of precision application of fertilizer for rice and maize, primary in the Terai where existing fertilizer application rates are comparatively higher.

ACTIVITY 2.1.1.4.1: EVALUATE PRECISION BROADCASTING AND OTHER EFFICIENT FERTILIZER APPLICATION METHODS FOR TECHNICAL PERFORMANCE AND FARMER ACCEPTANCE

Low-cost (\$35 USD), precision broadcasting equipment has been evaluated by the CSISA project for wheat with promising results. We will extend those evaluations to rice and maize by assessing technical performance and farmer acceptance for both basal and top-dress fertilizer applications.

Benchmark(s):	Experiments completed for rice; business case assessed with existing entrepreneurs
Activity lead:	Fertilizer Lead
Key project staff:	Fertilizer Field Coordinator
Key collaborators:	IFDC
Location(s):	Banke, Bardiya, Kailali, and Kanchanpur
Dates:	1 June 2016 – 31 Mar 2017

ACTIVITY 2.1.1.4.2: EMPLOY MARKET DEVELOPMENT STRATEGIES WITH TRADE ASSOCIATIONS AND SERVICE PROVIDERS TO OUT-SCALE PRECISION APPLICATION TECHNOLOGIES

Market development efforts are ongoing at the level of micro-enterprise development in coordination with the Knowledge Based Integrated Sustainable Agriculture and Nutrition (KISAN) project and through expanding import and distribution through input dealers. The project's focus in the first six months will emphasize brokering importing arrangements with Dhahal Traders and other suppliers of low-cost agricultural machinery from China.

Benchmark(s):	Business diagnostics, including profitability and growth potential assessed with existing entrepreneurs. New importing arrangements formalized between Chinese suppliers and Nepali importers.
Activity lead:	Fertilizer Lead
Key project staff:	Fertilizer Field Coordinator
Key collaborators:	NARC
Location(s):	Banke, Bardiya, Kailali, and Kanchanpur
Dates:	1 Jun 2016 – 31 Mar 2017 (ongoing)

SUB-IR 2.1.2: VALUE CHAINS STRENGTHENED

SEED OBJECTIVE 2.1.2.1: SEED SYSTEM MANAGEMENT SCALED THROUGH RESEARCHERS, SEED COMPANIES, DEALERS, RETAILERS, SEED PRODUCERS AND DEVELOPMENT AGENCIES. (NOTE: ALSO LINKED WITH 2.1.1.3)

The timely availability of quality seed of both local as well as imported varieties is a serious constraint, especially in mid hills and other geographically challenging areas, due to weakness of the present seed system. Strengthened seed systems will ensure sustainable access to elite seeds and is an important foundation for the near-term realization of the benefits from crop genetic improvement at the farm scale. Seed systems are invariably complex and typically require the coordinated efforts of many public and private actors spanning policy, breeding, production, distribution, and marketing to achieve and sustain systemic changes in seed system functioning.

Developing a competitive and vibrant seed system, will entail significant expansion of seed production, marketing and distribution, as well as strengthening the capacity of public, private and community sectors in the seed value chain. Currently, the seed system in Nepal suffers systemic and institutional deficiencies that limit its abilities to achieve the Seed Vision targets, which are huge compared with the current status.

Breeding for new varieties as well as maintenance of existence varieties is an integral part of an effective seed system. Support to breeding for new varieties (HYVs/hybrids) suitable to various agro-climatic zones across the country is important for increasing technology adoption and thereby crop productivity. There is a need for collaborative work between national and international research institutions and the private sector in order to orient the breeding program towards the needs of the market.

The public sector (NARC), private sector and CGIAR centers working in Nepal have their own strengths. These strengths can be leveraged for greater synergy through a pragmatic approach that focuses on collaboration through public-private partnerships (PPPs) like the ones described in the Project Activities below. CGIAR centers, especially CIMMYT, IRRI and the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), have successfully strengthened seed systems of rice, maize, wheat and other crops in Asia and sub-Saharan Africa through establishment of public-private consortia. Examples include the International Maize Improvement Consortium (IMIC, led by CIMMYT), the Hybrid Rice Development Consortium (HRDC, led by IRRI), and the Hybrid Parents Research Consortium (HPRC, led by ICRISAT) for pearl millet and sorghum. NSAF will leverage its partnerships to ensure that the important lessons learnt through operationalization of these consortia will be applied in its own activities. Likewise, experiences from participatory varietal selection (PVS) in wheat, rice and maize can be a good learning for implementing similar strategies in crops like lentil and vegetables. Thus, public-private partnerships in all the target crops of the NSAF project is possible through the

establishment of a tripartite collaboration between the CGIAR centers, NARC, and the private sector, especially the small- and medium-sized enterprises (SMEs).

ACTIVITY 2.1.2.1.1: ESTABLISH GERmplasm SHARING SYSTEM AMONG NARC, PRIVATE SEED SECTOR PARTNERS, INTERNATIONAL RESEARCH CENTERS AND SEED AGENCIES

In order to build the capacity of Nepalese breeding programs and increase their access to improved germplasm, the project will develop a tripartite mechanism between:

- 1) The CGIAR institutes (CIMMYT, IRRI, International Center for Agricultural Research in the Dry Areas [ICARDA], and the World Vegetable Center [AVRDC]),
- 2) NARC institutions (National Maize Research Program [NMRP], National Rice Research Program [NRRP], Grain Legume Research Program [GLRP], and Horticulture Research Division [HRD]), and
- 3) Private seed companies.

An NSAF-PPP Coordination Cell, which will be established within NARC and include representatives of the relevant partners, will coordinate this activity. This mechanism will support Nepal public and private sector partners to access improved germplasm from CGIAR, besides allocation of specific hybrids and improved OPVs in a more transparent and legal manner. The project will support NARC to become member of IMIC and HRDC, for improving access of the national agricultural research system (NARS) institutions in Nepal to hybrid-oriented source germplasm. Similarly, support will be extended to the local seed companies to acquire breeding lines and products developed by NARC, following the prevailing practices. In addition, the project will explore opportunities for assisting NARC in broadening its network to other South Asian and international research organizations to enable it to access seed of improved varieties in the target crops. It will also establish germplasm sharing and product licensing mechanism under this tripartite mechanism, based on a review of existing models (e.g., IMIC, HRDC, HPRC) and CIMMYT procedures.

Over the course of the 2016-2017 AWP period, the project will:

- 2.1.2.1.1.1. Draft a document on a tripartite mechanism between CGIAR institutes, NARC and private seed companies, for improved germplasm access and capacity building of breeding programs;
- 2.1.2.1.1.2. Establish an NSAF-PPP Coordination Cell to oversee the tripartite PPP mechanism;
- 2.1.2.1.1.3. Design a mechanism for licensing improved hybrids/OPVs from NARC to local seed companies; and
- 2.1.2.1.1.4. Develop policy documents establishing the principles of germplasm exchange and licensing to be implemented by NARC.

Benchmark(s):	Germplasm sharing system is fully and effectively implemented
Activity lead:	Seed Systems lead
Key project staff:	Project Coordinator
Key collaborators:	IRRI, NARC
Location(s):	Kathmandu
Dates:	1 June 2016 - 31 March 2017

ACTIVITY 2.1.2.1.2: ESTABLISH MARKET-ORIENTED RESEARCH CONSULTATIVE FORUM (MORCF) OF RESEARCHERS, INPUT SUPPLIERS AND END USERS

Inculcating a value-chain analysis approach into Nepal's research culture will be critical to modernizing NARC and local private sector agricultural research, and for sustainably providing technologies to the farmers in a competitive economy. Developed technologies must address not only increasing productivity, but also the preferences of farmers and end users. Thus, efficient communication between researchers and users of the technologies and maintaining regular feedback is paramount. This will also broaden the array of potential clients for NARC's research to include the whole set of value-chain actors. This activity will establish a value chain network, in the form of a consultative forum including NARS, relevant members of the CGIAR, private seed companies, and end-user industries, in order to develop vertical and horizontal linkages among the seed value chain actors. This will ensure that research is meeting end-user needs and receiving feedback on technologies in use through regular dialogue with stakeholders, while providing first-hand information to the end-users on the newly developed technologies. This forum shall meet twice a year (at each crop season) to provide suggestions for market-oriented technology development activities. The NSAF-PPP Coordination Cell at NARC will coordinate this activity.

Over the course of the 2016-2017 AWP period, the project will:

- 2.1.2.1.2.1 Design a Market-Oriented Research Consultative forum (MORCF); and
- 2.1.2.1.2.2 Meet semi-annually and document recommendations.

Benchmark(s):	1 new public-private partnership formed as a result of FTF assistance; 1 st meeting held
Activity lead:	Seed Systems Lead
Key project staff:	Market Development Specialist
Key collaborators:	IRRI, NARC
Location(s):	Kathmandu

Dates:

1 July 2016 – 31 March 2017

ACTIVITY 2.1.2.1.3: ESTABLISH TECHNOLOGY REFINEMENT PLATFORMS (TRPs) TO EVALUATE THE SOURCED PRE-COMMERCIAL AND RELEASED HYBRIDS AND IMPROVED OPVs IN TARGETED AGRO-ECOLOGIES

It is necessary to ensure that the varietal selection process for improvement of rice, maize, lentils, and high-value vegetables is robust, science-based and less subject to the vagaries of local weather and environmental conditions. This can be achieved through field-based phenotyping for prioritized traits; however, this presents certain technological challenges that NARC and other R&D centers are not currently well equipped to handle. The project will establish, in collaboration with NARC, three dedicated Technology Refinement Platforms (TRPs), one each in the main agro-ecological zones, namely Terai, low hills, and the mid-hills. These TRPs will have field-based Phenotyping/ testing facilities for evaluating targeted traits related to abiotic stress tolerance (drought, waterlogging/flood and heat), biotic stress tolerance (major diseases) and grain and vegetable/fruit quality, where weather parameters and soil fertility features are well-defined and controlled, and treatment conditions are imposed to allow for rigorous, science-based decision-making. Each TRP will need to have a dedicated field block characterized for soil fertility, a UC-Davis weather station, a misting facility for disease screening (if applicable), land-leveling, soil moisture monitoring using neutron probes for drought screening, and controlled irrigation facilities. These physical R&D facilities will strengthen phenotyping/screening capacity of both public/private institutions in Nepal.

The Project will support the development of all three TRPs to ensure uniformity of facilities for proper phenotyping. The project will provide financial support as well as technical support and oversight for conducting the assigned trials. Presently, the agro-ecology of the target region is characterised as (1) Low land Terai and river basin (2) low hills up to 700m and mid hills up to 1000 m. One TRP will be established at each of the agro-ecologies. These TRPs will be jointly established by CIMMYT and IRRI. The TRP for Terai ecology will be established at Regional Agricultural Research Station, Khajura, Nepalgunj and will be managed by CIMMYT. IRRI will develop the submergence screening facilities for rice at Nepalgunj in collaboration with CIMMYT and NARC. The TRP for Mid hills will be established at the campus of Nepal Agricultural Research Institute at Kumaltar and this will be managed by the public-sector entity, NARC. The third TRP, for low hills, will be established at a National Seed Company, Ltd. (NSC) research facility located in Siddhara, Arghakhanchi, to strengthen the private sector R&D capacity. The following criteria have been enlisted for selecting a TRP site:

I. Farm:

- a. Farm land located in a place which is about 700-800 m above sea level, in western, mid-western, or far western development region of Nepal or in any of the following districts- Sindhuli, Kabre, Makwanpur, Nuwakot, and Sindhupalchok

- b. Sufficient land (2 to 2.5 ha), which is flat, fenced , with irrigation facility
 - c. Easily accessible from the major road and connected by all-weather road
 - d. Easy access to skilled labours and farm labours
 - e. Company owned or land on long lease (>10 years agreement) and a commitment to dedicate the land for the duration of the project period (2016-2021)
2. Other terms and conditions are
- a. TRP site is dedicated to the NSAF project for the period of the project.
 - b. Provide access to public-private sector partners for screening the germplasm, freely, during the project period and on a mutually agreed mechanism after the project period.
 - c. Conduct screening trials of rice, maize, lentil, tomato, onion and cauliflower, as per the agreed work plan.
 - d. Protect the Intellectual property and confidentiality of the germplasm screened during the project period
 - e. Willingness to contribute to the project goal, irrespective of source of germplasm (public or private)
 - f. Deployment of staff for taking up the trials and record good quality data
 - g. Free access to project staff and project management team throughout the project period.
 - h. Continuation of the financial support, for this facility, is subjected to the satisfactory execution of allotted activities (Field trials), as per the agreed work plan

Three seed partners, Viz., (1) Lumbini Seed Company (Pvt.) Ltd. Bhairahawa, Rupandehi (2) Unique Seed Company, Dhangadi, Kailali and (3) National Seed Company, Limited (NSC), Kuleswor, Kathmandu, responded positively. The project team, after considering the land and available additional facilities choose to set up the third TRP at the NSC facility at Siddhara, Arghakhanchi district. These TRPs, as permanent facilities, will serve as representative sites for selecting suitable technologies for deployment, and will serve as training hubs for phenotyping.

Over the course of the 2016-2017 AWP period, the project will undertake the following Sub-Activities:

- 2.1.2.1.3.1 Establish a TRP at the Regional Agricultural Research Station (RARS) in Khajura, Nepalgunj;
- 2.1.2.1.3.2 Establish a TRP at NARC in Kumaltar, Lalitpur; and
- 2.1.2.1.3.3 Establish a TRP at NSC Siddhara, Arghakhanchi.

Benchmark(s): 3 TRPs established and functional

Activity lead: Seed Systems lead,
 Key project staff: P S Zaidi, LM Suresh,
 Key collaborators: IRRI, NARC, NSC,
 Location(s): Nepalgunj, Kumaltar, Siddhara
 Dates: 1 June 2016 – 31 December 2016

ACTIVITY 2.1.2.1.4: SOURCE HIGH-YIELDING, CLIMATE-RESILIENT, IMPROVED HYBRIDS AND OPVs FOR TESTING

Promising high-yielding, climate-resilient improved hybrids and OPVs of the target crops shall be sourced from international sources (CIMMYT, IRRI, ICARDA, AVRDC, etc.), NARC institutions, local and international private seed companies, and from ongoing projects in Nepal (Heat Tolerant Maize for Asia [HTMA], Cereal Systems Initiative for South Asia [CSISA], Stress-Tolerant Rice for Africa and South Asia [STRASA], etc.). This will be an ongoing activity throughout the project period, with specific annual targets. The stages at which the sourced pre-commercial/released hybrids/OPVs are tested depend on the available information and prevailing regulatory requirements.

Over the course of the 2016-2017 AWP period, the project expects to:

- 2.1.2.1.4.1 Provide a list of improved pre-commercial/released hybrids/OPVs in the target crops to be sourced nationally/internationally by NARC;
- 2.1.2.1.4.2 Receive seed of the identified rice hybrids/OPVs from NARC and other project partners for constituting the trials;
- 2.1.2.1.4.3 Receive seed of identified maize hybrids/OPVs from NARC and other project partners for constituting the trials;
- 2.1.2.1.4.4 Receive seed of identified improved lentil OPVs from NARC and other project partners for constituting the trials; and
- 2.1.2.1.4.5 Receive seed of identified improved hybrids/OPVs of high-value vegetables (tomato, onion and cauliflower) from NARC and other project partners for constituting the trials.

Benchmark(s): Pre-commercial/released hybrids/OPVs of each target crop will be sourced, as follows: at least 100 hybrids/OPVs each of maize and rice; at least 50 OPVs of lentils; and at least 50 hybrids/OPVs of each target vegetable crop.

Activity lead: Seed Systems Lead

Key project staff: None

Key collaborators: IRRI, NARC, IRRI, CEAPRED

Location(s): Kathmandu

Dates: 1 April 2016 – 31 March 2017

ACTIVITY 2.1.2.1.5: SOURCE PARENTAL LINES IN HYBRID CROPS

Suitable germplasm will be sourced from international sources, including crop-specific research consortia, to strengthen the hybrid development capabilities of NARC and local seed partners for current and future expanded product portfolio. Existing understanding between Nepal NARS institutes and international agencies like CGIAR institutes, United States Department of Agriculture (USDA), Indian Council of Agricultural Research (ICAR), will also be utilized to source improved germplasm in the target crops.

Over the course of the 2016-2017 AWP period, the project will:

- 2.1.2.1.5.1 Source advanced maize inbred lines, including CIMMYT Maize Lines (CMLs) adapted to Asia from CIMMYT, including IMIC-Asia; and
- 2.1.2.1.5.2 Source advanced parental lines of rice hybrids from the Hybrid Rice Development Consortium (HRDC), led by IRRI.

Benchmark(s): At least 100 advanced inbred/parental lines each sourced for maize and rice

Activity lead: Seed Systems Lead

Key project staff: B.S. Vivek, PS Zaidi

Key collaborators: IRRI, NARC

Location(s): CIMMYT-Hyderabad/ Nepalgunj/México, IRRI-Philippines

Dates: 15 March 2017 – 31 May 2017

FERTILIZER OBJECTIVE 2.1.2.2: NARES CAPACITY FOR DEVELOPING AND DEPLOYING ISFM TECHNOLOGIES ENHANCED (NOTE: ALSO LINKED WITH OBJECTIVE 2.2.1.2)

Soil fertility research and generation of fertility management recommendations for different crops are both under the purview of Nepal Agricultural Research Council (NARC), whereas responsibilities for developing soil information systems through field surveys and laboratory analysis are the responsibility of the Department of Agriculture's Soil Management Directorate (SMD). The success of both institutions requires a high level of competence and quality control

for soils analysis, and engagement with both NARC and SMD in a coordinated manner by NSAF is extremely important for ensuring that new fertility management recommendations are profitable, efficient, and fully owned and endorsed by the NARES institutions. To that end, we will focus on essential skills development for SMD and NARC in areas that are of direct relevance to the success of the program.

ACTIVITY 2.1.2.2.1: PROVIDE PRACTICAL INSTRUCTION IN ADVANCED LABORATORY-BASED SOIL ANALYSIS

In Nepal, basic and continuing education programs in soil analysis are very poor, and most practicing soil scientists are cut-off from opportunities for refresher training in best practices as well as basic training in new methods. CIMMYT and IPNI enjoy close professional relationships with colleagues at India's premier soil science institutes in New Delhi (India Agricultural Research Institute – IARI) and in Bhopal (India Institute for Soil Science – IISS). Under this activity, a week-long training program in soil physical and chemical analysis will be conducted in 2016 at IARI – New Delhi. A sub-set of trainees will also visit Bhopal to receive advanced training in spectral-based soil assessment methods that are being introduced for the first time in Nepal by this project. The timing of the Bhopal trip to IISS is contingent on coordination with World Agroforestry Center (ICRAF) scientists based in Kenya who will lead the training.

Benchmark(s):	12 scientists from NARC and SMD receive training in advanced soil analytical methods for chemical and physical properties.
Activity lead:	Fertilizer Lead
Key project staff:	N/A
Key collaborators:	IPNI, SMD, NARC
Location(s):	New Delhi and Bhopal (India)
Dates:	1 Oct 2016 – 31 Mar 2017

ACTIVITY 2.1.2.2.2: PROVIDE PRACTICAL INSTRUCTION IN ADVANCED GEO-SPATIAL LAND EVALUATION AND MAPPING METHODS

The genesis of a soil information system is not only predicated on the quality of laboratory analysis but also by the geo-statistical and land evaluation methods that determine efficient and representative sampling schemes that can predict soil properties for locations where no

samples have been taken. CIMMYT is in discussions with World Soil Information² and the Africa Soil Information Service (AfSIS)³ project to bring a team to Nepal to provide hands-on training for SMD and NARC scientists. In addition to general capacity development, the primary objectives of this training are two-fold: 1) to generate Nepal's first fine-scale digital soils map based on existing data, and 2) to mainstream best practices for designing new soil surveys into SMD workflows. As part of the G2G programming, SMD has proposed to complete soil surveys for four FTF districts where data is absent. We anticipate that the land evaluation and geo-statistical methods explored in this training will be used in the forthcoming surveys.

Benchmark(s):	At least 6 scientists from NARC and SMD receive training in geo-spatial land evaluation and mapping methods
Activity lead:	Fertilizer lead
Key project staff:	N/A
Key collaborators:	SMD, NARC, ICRAF, AfSIS, IRRI, CIMMYT
Location(s):	Kathmandu, FTF target districts
Dates:	1 Jan 2017 – 30 Sep 2017

ACTIVITY 2.1.2.2.3: PROVIDE INTRODUCTION TO THE PRINCIPLES OF INTEGRATED SOIL FERTILITY MANAGEMENT

Disciplinary knowledge among professional soil scientists and agronomists is generally strong, but most have a more limited understanding of how soil, plant, and atmospheric processes intersect with the human dimensions of enterprise management to influence optimum soil management choices. The objective of this training is to reinforce a basic knowledge of agricultural systems dynamics, and how these dynamics shape integrated soil fertility management strategies.

Benchmark(s):	12 scientists from NARC and SMD receive training in the principles of integrated soil fertility management
Activity lead:	Fertilizer Lead
Key project staff:	N/A
Key collaborators:	IPNI, SMD, NARC
Location(s):	New Delhi and Bhopal (India)

² <http://isric.org>

³ <http://africasoils.net>

Dates: 1 Oct 2016 – 31 Mar 2017

ACTIVITY 2.1.2.2.4: INTRODUCTION TO THE DESIGN, EVALUATION, AND INTERPRETATION OF FIELD EXPERIMENTS FOR NUTRIENT MANAGEMENT ASSESSMENTS

This activity is scheduled to begin in FY2017.

ACTIVITY 2.1.2.2.5: METHODS FOR CROP YIELD FORECASTING OPERATIONALIZED FOR NEPAL: THE FORGOTTEN 'HALF' OF PRECISION FERTILITY MANAGEMENT

This activity is scheduled to begin in FY2017.

ACTIVITY 2.1.2.2.6: AGGREGATE HISTORICAL DATA ON SOILS CHARACTERIZATION AND RATE RECOMMENDATIONS

In Nepal data curation and interpretation is sub-optimal, and past investments in applied science and informatics are, therefore, not fully leveraged. In order to make existing data and knowledge more relevant and accessible, the project will use a direct mentoring approach to work with NARC and SMD colleagues (5-7 leading scientists) to compile and store existing data on crop responses to nutrients as well as to develop soils databases with sound meta-data.

Over the course of the 2016-2017 AWP period, the project will:

- 2.1.2.2.6.1 Compile soil survey data
- 2.1.2.2.6.2 Begin compilation of field trial data

Benchmark(s):	Existing soil survey data curated into common formats, including clear geo-referencing whenever possible
Activity lead:	Fertilizer Lead
Key project staff:	GIS specialist
Key collaborators:	SMD, NARC, IRRI, IPNI
Location(s):	Kathmandu
Dates:	1 Jun 2016 – 31 Mar 2017

ACTIVITY 2.1.2.2.7: CURATE SPATIAL DATA FOR ACCESSIBILITY - MOBILIZE SMD DATA FOR DECISION MAKING

The data compiled under Activity 8.6 will eventually be incorporated into an online portal. This activity is scheduled to begin in FY2017.

ACTIVITY 2.1.2.2.8: PROVIDE INTRODUCTION TO METHODS FOR QUANTIFYING FARMER PREFERENCES AND INCENTIVES FOR INVESTMENT IN SOIL FERTILITY MANAGEMENT

A frontier area of applied socio-economics is formalization of insights into farmer decision processes. Documenting and interpreting decision processes with respect to soil fertility management are important factors for customizing recommendations for different farmer types and for guiding market-developed efforts towards geographies where new information is likely to be more highly valued. With NARC's Socioeconomics and Agricultural Research Policy Division (SARPOD), the project will increase the capacity to design and interpret surveys that document farmer preferences and decision processes around soil fertility management.

Benchmark(s):	At least 6 scientists from NARC and DOA receive training in quantifying farmer decision process and willingness to pay for soil enhancement
Activity lead:	Socio-economics Lead
Key project staff:	N/A
Key collaborators:	NARC, DOA
Location(s):	Nepal
Dates:	1 Jan 2017 – 30 Jun 2017

ACTIVITY 2.1.2.2.9: POLICY OPTIONS EVALUATED FOR STIMULATING PRIVATE INVESTMENT IN FERTILIZER SUPPLY AND DISTRIBUTION (EXPOSURE VISIT TO OTHER COUNTRIES)

In order to support policy reforms through MOAD, the project will also facilitate exchange visits for key personnel to review and discuss voucher-based subsidy programs in other countries supported by the International Fertilizer Development Center (IFDC). This activity was originally envisioned to happen in the first months of the project. However, the policy environment around fertilizers has rapidly shifted in the last few weeks towards the planned piloting of a 'direct benefit transfer' (DBT) scheme in India. If enacted, this would have enormous implications for Nepal's own policy choices and a voucher-based plan may no longer be relevant (see Objective 2.4.2.2 for NSAF's planned engagement on this issue). Exposure visits may be pursued after greater clarity is achieved on the DBT roll-out in India and the project assists GON consider policy response options. In the interim, NSAF will hold a roundtable dialogue with MOAD, IFPRI, and other key stakeholders to consider policy response options to the forthcoming DBT launch in India.

Benchmark(s):	Policy roundtable held with MOAD to consider response options to the DBT launch in India
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Activity lead: Fertilizer Lead
Key project staff: N/A
Key collaborators: MOAD, IFPRI, IFDC
Location(s): Nepal
Dates: By October 2017 (final date pending MOAD consultations)

IR 2.2: SMALL ENTERPRISE OPPORTUNITIES EXPANDED

SUB-IR 2.2.1: ENTREPRENEURIAL SKILLS STRENGTHENED

SEED OBJECTIVE 2.2.1.1: SEED RESEARCH AND BUSINESS PARTNERS'
ENTREPRENEURIAL CAPACITY ENHANCED (NOTE: ALSO LINKED WITH
2.1.1.2 AND 2.4.1.2)

The Seed Vision of Nepal envisages a strong domestic seed industry for export of seeds, besides meeting the local demands. To this end, NSAF will implement a number of training initiatives for public and private stakeholders across the value chain. These training initiatives will be informed by up-to-date information on the national and regional seed markets.

ACTIVITY 2.2.1.1.1: ENHANCE CAPACITY OF INSTITUTIONS ALONG NEPAL'S SEED SECTOR VALUE CHAIN⁴

Availability of a skilled workforce is crucial to support the growth of the seed industry, as envisioned in the Seed Vision 2013-2025. The project, in collaboration with NARC and other project partners, will develop a capacity-building program to address the identified and prioritized needs. A group of selected literate farmers, NARC breeders, and seed company representatives will be trained on various key aspects of seed system research, product deployment, production, marketing, seed quality, etc. Participants will be selected in line with the Gender Equality and Social Inclusion (GESI) plan. This will be organized as a series of customized training events at different locations in Nepal, jointly organized by CIMMYT, IRRI, CEAPRED and NARC scientists. The events will be designed as refresher courses to sharpen

⁴ Activities 3.2 through 3.8 (as described in the proposal document) relate to capacity-building of personnel identified in institutions (public and private) across the seed sector value chains. These have been rolled together in the work plan as sub-activities under this single umbrella Activity 2.2.1.1.1. Activity 3.9 as described in the proposal (support to seed SMEs for business plan development, to improve their access to finance) has been merged under Objective 2.2.2.1. These changes are expected to help streamline ME&L and reporting and provide a more logical results framework.

the technical skills of staff already working in the area. The trainees will become the subject matter specialists (SMS) for future in-house training at their respective institutions (Sub-Activity 2.2.1.1.1.1).

Engagement of the informal seed system, i.e., the community-based seed producers (CBSPs) which are especially prevalent in the remote areas of Nepal, is crucial for effective and sustainable deployment of new technologies. A pre-season training program on participatory research trials, seed production, seed production research, business development and marketing will be organized for all participating CBSPs, NGOs and seed partners for supporting and strengthening informal seed system. (Sub-Activity 2.2.1.1.1.2)

Given the importance of breeding efforts to enhance stress resilience crop varieties, partnering CGIAR institutes have developed protocols for phenotyping in field experiments. In alternative years, the project team, for the benefit of NARC and seed partners, will organize a workshop on phenotyping for key product portfolio traits of each crop. (Sub-Activity 2.2.1.1.1.3)

There should be qualified managers and technicians who can work in the companies to professionalize and grow its businesses. Presently, there is no such seed technology course in Nepali institutions. This project will develop the curriculum for relevant short-term certificate and diploma courses as per industry requirements, and build the internal capacity of the university/college to start the program within the first two years. (Sub-Activity 2.2.1.1.1.4)

Hybrid breeding is challenging and complex compared to varietal breeding. In order to meet the Seed Vision targets of 40 hybrid varieties (20 in vegetables, 10 in maize, and 10 in rice), NARC needs to significantly strengthen its capacity to conduct research on crop hybrids and component technologies like parental line maintenance and hybrid seed production. Despite the high demand for hybrids, research in hybrid variety development is limited due to a lack of trained human resources, resulting in a negligible number of hybrids released in the last 10 years. In order to bridge this gap, NSAF will provide financial assistance to NARC breeders, seed technologists, technical officers to enroll in Master's or PhD programs focused on heterosis breeding and hybrid seed production technologies. Selected scientists will be sponsored for MSc or PhD program in universities in Nepal and appropriate project scientists from CIMMYT, IRRI and NARC (according to the specific research topic) will provide research guidance. Over the life of the project, NSAF will support three scientists for PhD programs on hybrid breeding in maize, rice, and vegetables, and two technical officers for master's programs in seed production technology in maize and rice. These scientists/technical officers will not only be the partners in the project but also serve as resource persons for future capacity building efforts. (Sub-Activity 2.2.1.1.1.5)

Online support for seed organizers, trialing partners and other key value chain players (in both seed and fertilizer) is essential for harnessing the value of technology. The project will develop technical troubleshooting modules (TSMs) on all 6 mandated crops, for providing online advisory on crop management, harvesting and handling of seed crops. However, the online

support will be managed and extended by CDD and VDD, through G2G funding. (Sub-Activity 2.2.1.1.1.6, in coordination with G2G)

Existing seed companies in Nepal are generally characterized not only by their relatively small size in terms of turnover and capital, but also by the fact that they largely rely on cereal OPV seeds where margins are inherently very low. This situation, coupled with the absence of appropriate business plans and strategies, has restricted their growth. NSAF will help SMEs design or improve their business development programs and thereby develop the business capacity of the seed industry in Nepal. These programs will be executed through workshops with focus on general good seed business practices, and later complemented by Activity 2.2.2.1.1 (Mentoring for development of business plan to source working / growth capital from financial institutions) to help them develop individual business plans. (Sub-Activity 2.2.1.1.1.78)

Over the course of the 2016-2017 AWP period, the project will:

- 2.2.1.1.1.1 Train Subject Matter Specialists (SMS) on seed value chain areas, including crop breeding, product development, seed production, seed processing, seed quality, seed sales and marketing, and seed business account and finance.
- 2.2.1.1.1.2 Train CBSPs, NGOs and seed partners in seed production, business development / marketing (pre-season)
- 2.2.1.1.1.3 Train R&D staff on field-based phenotyping for abiotic and biotic stress tolerance and quality traits (one workshop for maize, and one workshop for rice)
- 2.2.1.1.1.4 Support curriculum development for short courses on seed systems: develop a curriculum for certificate and diploma courses in seed technology for the Council of Technical Education & Vocational Training (CTEVT) and Agriculture and Forestry University (AFU), Rampur.
- 2.2.1.1.1.5 Support three scientists and one technical officer, from NARC, with tuition for PhD and Master's programs respectively, at CTEVT and AFU.
- 2.2.1.1.1.6 Develop technical troubleshooting modules (TSM) for advisory services of partners: one each for maize, rice and tomatoes
- 2.2.1.1.1.7 Train seed partners on business capacity development: provide a workshop on good seed business practices

Benchmark(s): At least 470 individuals, representing the public and private sector institutions, trained in identified areas; one seed technology curriculum developed; three TSMs developed; support 4 NARC staff for long-term training

Activity lead: Seed Systems Lead,

Key project staff: Market Development Specialist, Maize Physiologist, Maize Pathologist,
Key collaborators: IRRI, NARC, CEAPRED, seed partners
Location(s): Kathmandu, and other locations in Nepal (to be determined)
Dates: 1 Oct 2016 – 31 Mar 2017

FERTILIZER OBJECTIVE 2.2.1.2: ISFM AND THE '4Rs' OF FERTILIZER MANAGEMENT SCALED THROUGH DEALERS, RETAILERS, COOPERATIVES, DEVELOPMENT PARTNERS, AND BACKSTOPPED BY EXTENSION

Based on established principles and the updated and domain-specific recommendations emerging from on-farm experimental work, the project will design and implement a ISFM training curriculum for scaling intermediaries that is practical in nature and fully aligned with what they need to know to do their own jobs more effectively. The term 'intermediaries' is used to refer to engagement with organizations and individuals that, in turn, provide knowledge or services to larger numbers of farmers. By focusing on strengthening intermediaries, the project endeavors to implement a 'one affects many' approach where technologies can be efficiently taken to scale without the onerous time and financial costs associated with direct training of farmers.

ACTIVITY 2.2.1.2.1: TRAININGS ON ISFM AND THE 4Rs OF FERTILIZER MANAGEMENT CONDUCTED FOR SCALING INTERMEDIARIES (RETAILERS, COOPERATIVE LEADERSHIP, EXTENSION, DPs)

In order to support the scaling up of improved integrated soil fertility management practices through the '4Rs' of fertilizer management framework (i.e. right source, right rate, right time, right place), NASF will conduct trainings for retailers, cooperatives, extension agencies and development partners like KISAN on the same. Topics will include: principles of ISFM, soil pH and liming, crop-specific application rates (macro and micro-nutrients), fertilizer splitting and timing of application, methods of fertilizer placement, fertilizer quality and handling considerations, and how farmers can prioritize investments if financial resources are scarce. The target audience includes: the leadership of agricultural cooperatives involved in fertilizer distribution, agricultural input dealers (agro-vets), staff of development partners, and DADO staff in each targeted district.

The project will conduct 10 full-day trainings per year with 10 trainees per event, which will be held in or near DADO offices or VDC headquarters. Over a five-year period, this equates to 100 trainings reaching 500 different intermediaries. With an estimated impact ratio of 100:1 (the ratio of technology adopters to trained intermediaries), approximately 50,000 farmers will be reached through scaling intermediaries over the project's lifecycle, thereby creating a critical mass of first adopters for ISFM technologies in the FTF zone of influence.

Benchmark(s): 100 intermediaries receive training in ISFM principles; at least 10,000 farmers receive better advice on soil fertility management practices through intermediaries

Activity lead: IFDC

Key project staff: Fertilizer Lead

Key collaborators: DOA, KISAN project

Location(s): FTF Districts

Dates: 1 Jul 2016 – 31 Mar 2017

ACTIVITY 2.2.1.2.2: NETWORK OF ISFM DEMONSTRATIONS (WITH QUANTIFIED CHECKS) ESTABLISHED WITH RETAILERS, EXTENSION, AND DEVELOPMENT PARTNERS

As a companion effort to the training of intermediaries, the project will work together with DADO officials, cooperative leadership, and agro-retailers, to establish a network of demonstration plots throughout targeted Feed the Future districts under G2G activity. At least one demonstration site per every 2-3 targeted VDCs per season over a three year period will be established, co-funded with DADOs and/ or agro-vets as feasible, amounting to approximately 450 demonstrations over project years 2-4. For at least three demonstration sites per year (180 sites over project years 2 - 4), farmer field days will be organized, drawing at least 50 neighboring farmers per field day or 9,000 total farmers.

This activity is scheduled to begin in FY2017.

ACTIVITY 2.2.1.2.3: SOCIAL MARKETING CAMPAIGNS WITH DOA AND FAN CONDUCTED TO BUILD AWARENESS AMONG FARMERS OF THE BENEFITS OF ISFM

To maximize the number of farmers reached through the project, social marketing and basic extension messaging efforts will be deployed through print, video, and other forms of mass media (e.g. radio broadcasts). These messages will be mainstreamed through DOA, development partners, and through FAN within and beyond the FtF zone

This activity is scheduled to begin in FY2017.

SUB-IR 2.2.2: ACCESS TO FINANCIAL AND BUSINESS SERVICES INCREASED

SEED OBJECTIVE 2.2.2.1: ACCESS TO FINANCIAL AND BUSINESS SERVICES BY SEED ENTERPRISES INCREASED

CSISA's recently completed SWOT analysis of 13 seed companies in the Terai confirmed that working capital is a primary constraint to future growth in almost every case. In general, bank lending for enterprise growth for seed industry is uncommon in Nepal, as financial institutions do not understand the sector and most SMEs do not have elaborated business plans.

ACTIVITY 2.2.2.1.1 MENTORING FOR DEVELOPMENT OF BUSINESS PLAN TO SOURCE WORKING / GROWTH CAPITAL FROM FINANCIAL INSTITUTIONS

The project will address the concern of business plan by assisting SMEs (previously vetted under the Hill Maize Research Project [HMRP] and CSISA projects) with business plan development through a pre-season mentoring program. We will also work with USAID to utilize the Development Credit Authority (DCA) mechanism to encourage national financial institutions to lend to seed and fertilizer SMEs by reducing their exposure to default-based risks. The project will also work with SEAN to convene an investor conference with larger industry players from India and elsewhere in the Asia-Pacific region. The intent of the conference will be to present business cases for growth that may encourage foreign direct investment (FDI) in the form of joint ventures.

Over the course of the 2016-2017 AWP period, the project will:

- 2.2.2.1.1.1 Provide mentorship to seed company partners for developing business plans;
- 2.2.2.1.1.2 Facilitate linkages between seed partners and financial institutions; and
- 2.2.2.1.1.3 Shortlist innovation / venture fund for entrepreneur development.

Benchmark(s): Business plans developed for at least 5 SME partners, at least 3 of which receive loans

Activity lead: Market Development Specialist

Key project staff: n/a

Key collaborators: External consultant

Location(s): Kathmandu

Dates: 1 May 2016 – 31 December 2016

ACTIVITY 2.2.2.1.2: RAISING TECHNICAL CAPACITY OF FINANCIAL INSTITUTIONS TO ASSESS AGRICULTURE BUSINESS LOAN OPPORTUNITIES FOR DCA PARTNERS

The survey of local seed companies under CSISA also indicated that financial institutions in Nepal are not responsive to credit needs of seed business in particular and agribusiness in general, due to the in-built complexities of the seed business. The project will conduct periodic (once in 2 years) workshops for financial institutions to increase awareness and understanding of the seed industry's technical and financial aspects, with an overall intention of facilitating greater access by the seed and fertilizer sectors to reasonable finance requirements.

Over the course of the 2016-2017 AWP period, the project will:

2.2.2.1.2.1 Organize a workshop to increase awareness among the financial institutions about technical and financial aspects of the seed industry.

Benchmark(s): At least 30 individuals from approximately 15 selected financial institutions based in Nepal trained on seed and fertilizer sectors

Activity lead: Market Development Specialist

Key project staff: Seed System Lead

Key collaborators: External consultant

Location(s): Kathmandu

Dates: 1 Aug 2016 - 31 Jan 2017

ACTIVITY 2.2.2.1.3 PROMOTE BUSINESS OPPORTUNITIES IN NEPAL SEED SECTOR TO INCREASE INVESTMENT

This activity is scheduled to begin in FY2017.

FERTILIZER OBJECTIVE 2.2.2.2: ACCESS TO FINANCIAL AND BUSINESS SERVICES BY FERTILIZER ENTERPRISES INCREASED

CSISA's recently completed SWOT analysis of 13 seed companies in the Terai confirmed that working capital is a primary constraint to future growth in almost every case. Similar constraints are likely to be present when incentives for investment in fertilizer import and distribution are increased through market development and anticipated policy reforms. In general, bank lending for enterprise growth in the seed and fertilizer sub-sectors is uncommon, as financial institutions do not understand the sector and most SMEs do not have elaborated business plans. The project will work with USAID and FAN to utilize the Development Credit Authority (DCA) mechanism to encourage national financial institutions to lend to seed and fertilizer SMEs by reducing their

exposure to default-based risks.

ACTIVITY 2.2.2.2.1 ACCESS TO CREDIT (INCLUDING LINKING TO DCA)

INCREASED TO SUPPORT NEW FERTILIZER INVESTMENTS BY THE PRIVATE SECTOR

This activity is scheduled to begin in FY2017.

IR 2.4: ECONOMIC GROWTH POLICY AND PERFORMANCE IMPROVED

SUB-IR 2.4.1: INCREASED ACCESS TO MARKETS

OBJECTIVE 2.4.1.1: MARKET-RESPONSIVENESS OF SEED DEVELOPMENT AND

DISTRIBUTION ENHANCED THROUGH A NATIONAL SEED INFORMATION SYSTEM

Increasing the market-responsiveness of seed development necessitates the consideration of demand-side factors. As highlighted in the FTF Baseline Report, approximately one-third of resident households in the FTF ZOI live in poverty and 10% face hunger. Poverty rates, farming systems, and agricultural productivity vary significantly by region and district (Feed the Future FEEDBACK, 2013: 5; 59). This implies that, in order to maximize the overall project impact, interventions have to be targeted efficiently, taking into account the variability of agro-ecological and socioeconomic conditions, and associated differential constraints.

In particular, farmers in more remote areas may have insufficient incentives to invest in increased agricultural productivity. This can be attributed to (1) limited marketing opportunities and high transport costs, (2) risks associated with higher levels of cash inputs under conditions of greater market integration (price fluctuations) and climate change (drought, excessive rainfall, the latter increasing the chance of landslides), (3) limited credit access, and (4) increasing labor scarcity associated with out-migration of household members (Blake, 2012; Böber, 2012; Feed the Future FEEDBACK, 2013; MLE, 2014).

ACTIVITY 2.4.1.1.1: ASSESS STAKEHOLDERS' PERCEPTIONS ON HYBRIDS/OPVs IDENTIFIED BY THE PROJECT (INDICATORS DISAGGREGATED BY DIFFERENT SOCIO-ECONOMIC PARAMETERS, INCLUDING FARM SIZE, ETHNICITY AND GENDER)

In the design and targeting of specific interventions, the project will take demand-side constraints (like those identified above) into account by analyzing existing data as far as possible (e.g., FTF Baseline Survey; USAID/NEAT fertilizer survey). To close the knowledge gaps, additional demand-side related market studies may be carried out within the FTF Baseline Survey sample (or a sub-sample thereof), as well as within a suitable sample in the additional target districts. Demand-side constraints will be further taken into account in recurrent surveys to be conducted by DOA with backstopping by CIMMYT (see Activity 2.4.1.1.2).

For the operationalization of the farmer typologies, aggregation according to observable criteria will be required. Furthermore, clear mechanisms for identifying households as belonging to individual farm types need to be developed. This will allow us to calculate the share of farmers in a specific location that belong to a specific farm type/typology class (extrapolation), which will in turn provide important information to the project for targeting and scaling activities.

This activity will be coordinated with G2G activities through the Project CC.

Over the course of the 2016-2017 AWP period, the project will:

- 2.4.1.1.1.1 Analyze available baseline data of FTF Baseline Survey (including that KISAN field survey for FTF 2014 data and 2013 FEEDBACK population-based survey [PBS]).
- 2.4.1.1.1.2 Sub-sample survey to bridge the knowledge gap

Benchmark(s): Report on Stakeholders' Perceptions of Identified Hybrids/OPVs
Activity lead: Socio-economist Lead
Key project staff: n/a
Key collaborators: DOA, MOAD
Location(s): Kathmandu
Dates: 1 August 2016 – 28 February 2017

ACTIVITY 2.4.1.1.2: CONDUCT A STUDY OF SEED MARKET POTENTIAL IN TARGET DISTRICTS, AND A RECURRENT SURVEY FOR SEED MARKET AND USE CASES

Tools for recurrent surveys will be developed, which include questionnaire modules on farmers' preferences for specific varieties and traits, current seed and fertilizer use, as well as constraints to the adoption of and willingness to pay for these technologies. A framework will be developed to enable DOA to conduct data collection in the medium- to long-term perspective, preferably using a panel data approach, i.e., revisiting the same random sample of farm households over time.

Over the course of the 2016-2017 AWP period, the project will:

- 2.4.1.1.2.1 Conduct a market study to assess the potential size of seed markets across the project districts.
- Benchmark(s): Report on Seed Market Potential across NSAF Target Districts, at least one publication
Activity lead: Socio-economics Lead
Key project staff: Market Development Specialist

Key collaborators: DOA, MOAD
Location(s): 25 Target Districts
Dates: 1 October 2016 – 31 March 2017

ACTIVITY 2.4.1.1.3: RECURRENT SEED USE AND SALES SURVEYS PROVIDE ROBUST ANALYTICS ON SPATIAL AND TEMPORAL PROGRESSION OF MARKET DEVELOPMENT

As both a Monitoring and Evaluation (M&E) approach and a means of informing the range of seed system related activities proposed herein, the project will conduct recurrent surveys (at least once per year) with a sample of farmers, seed partners, and agrovets. For farmers, these surveys will assess use of seeds of new varieties and predictors thereof (e.g. market availability and knowledge of improved varieties). For seed companies and their dealers, surveys will assess product offerings, marketing practices, customer base, sales volume, and constraints to growth. Together, these surveys will generate robust analytics on the spatial and temporal progression of market development and impacts associated with seed use. Data collection will be conducted jointly with DOA with survey design inputs from NARC Social Sciences Division; digital survey methods will ensure timely data processing to inform the market information systems.

The survey conducted in the first year of the project will constitute the project's baseline, with changes documented thereafter used for FTF indicator reporting.

Benchmark(s): Baseline on use of seeds of varieties of target crops and market-based distribution documented for FTF Districts
Activity lead: Socio-economics Lead
Key project staff: Seed system lead
Key collaborators: NARC, DOA
Location(s): FTF Districts
Dates: 1 Jun 2016 – 31 Mar 2017

ACTIVITY 2.4.1.1.4: YIELD, ECONOMIC, AND HH WELFARE OUTCOMES WITH USE OF IMPROVED AND QUALITY SEED

The impact of use of quality seed, as implemented by farmers will be assessed with special studies to establish yield and economic welfare outcomes associated with new crop varieties. These studies will emphasize understanding the range of adoption patterns of new crop varieties. This activity is scheduled to begin in FY2017 after the deployment of new varieties by farmers has started. It is important to note that the project will assess new varieties as

implemented by farmers with their own resources (i.e. not project-supported technology demonstrations).

SEED OBJECTIVE 2.4.1.2: MARKET-RESPONSIVENESS OF SEED DEVELOPMENT AND DISTRIBUTION ENHANCED THROUGH A NATIONAL SEED INFORMATION SYSTEM

ACTIVITY 2.4.1.2.1: SUPPORT MOAD IN SETTING UP A SEED SECTOR INFORMATION SYSTEM (SSIS)

The project will support SQCC and DOA to develop and set up a Seed Sector Information System (SSIS) with a mechanism by which information can be disseminated to all related public, private and CBSP stakeholders. SQCC and CDD have developed their own information system (Seed Balance Sheet of SQCC), which is published annually and mostly only covers information on cereals and breeder and foundation seed production and supply. CDD wants to develop the balance sheet at each district level. In order to consolidate the requirements, contents, reporting formats and accessibility etc. NSAF will work with MOAD to develop a joint vision for the SSIS to make it useful to all players of seed value chain. As per the vision document, NSAF, SQCC and MOAD will work with the vendor to include the requirements of the client(s) and on sustainability of the portal. All required technical support, including the specs for the portal, identification of the vendor and validation of outputs will be provided by the Project to SQCC, which is commissioning the portal under the G2G activity.

Over the course of the 2016-2017 AWP period, the project will:

- 2.4.1.2.1.1 Conduct a survey to understand the requirements of different seed system value chain stakeholders for the seed information system;
- 2.4.1.2.1.2 Generate a report describing the system requirements, including content, reporting formats, accessibility, etc. plus SSIS vision; and
- 2.4.1.2.1.3 Begin validation of outputs of the SSIS portal prior to its commissioning by SQCC and MOAD under the G2G activity.

Benchmark(s): Finalized design of the SSIS

Activity lead: Seed Systems Lead

Key project staff: Socio-economics Lead, Market Development Specialist

Key collaborators: SQCC, MOAD

Location(s): Kathmandu

Dates: 1 October 2016 – 31 July 2017

FERTILIZER OBJECTIVE 2.4.1.3: FERTILIZER DEMAND, WELFARE OUTCOMES, AND MARKET CHARACTERIZATION STUDIES COMPLETED AND SUPPORT PUBLIC AND PRIVATE INVESTMENTS

In order to maximize the overall project impact, interventions have to be efficiently targeted, taking into account the variability of agro-ecological and socioeconomic conditions.

Identification and understanding of the characteristics and decisions processes of different types of farmers will support efficient targeting of recommendations to those farmers who are most likely to adopt them.

ACTIVITY 2.4.1.3.1: WILLINGNESS TO PAY FOR FERTILIZERS ASSESSED AS A FUNCTION OF AGRONOMIC 'LITERACY', FERTILIZER PRICE / QUALITY, AND FARMER TYPE - INCLUDING RISK PERCEPTION

Farmers' willingness to pay (WTP) for fertilizers and related application tools will be assessed, considering their background knowledge ('agronomic literacy'), the price and perceived quality of inputs, the importance of household-level staple crop production to livelihoods and food security, financial liquidity and access to markets, as well as risk-bearing capacity.

Contingent Valuation (CV) will be used to quantify the amount that farmers would be willing to (and able to) pay for fertilizer related technologies supported by the project. WTP data will be collected from households based on CV scenarios that describe the inputs that will be accessible to farmers through fertilizer/input providers that are supported by the project.

Benchmark(s): Functional farmer typologies developed respect to willingness and capacity to invest in ISFM

Activity lead: Socio-economics Lead

Key project staff: Fertilizer Lead

Key collaborators: NARC, DOA

Location(s): FTF Districts

Dates: 1 Oct 2016 – 31 Mar 2017

ACTIVITY 2.4.1.3.2: FUNCTIONAL FARMER TYPOLOGIES DEVELOPED WITH RESPECT TO INCENTIVES AND CAPACITY FOR INTENSIFICATION OF MAIZE, RICE, AND WHEAT

Output from willingness to pay and cognitive mapping studies under Activity 2.4.1.2.1 will form the primary basis for deriving an understanding of farmer 'types' that predict behavior responses to new information and new soil management technologies. These types will guide where the project expends much of its initial effort for fertilizer market development and will also be used to develop fertilizer rates recommendations that are responsive to the diverse capacity and willingness of farmers to invest in soil fertility enhancement.

Benchmark(s): Initial functional typologies and WTP characterization completed and used to inform project strategy

Activity lead: Socio-economics Lead

Key project staff: N/A

Key collaborators: DOA, NARC,

Location(s): FTF Districts

Dates: 1 Oct 2016 – 31 Mar 2017

ACTIVITY 2.4.1.3.3: RECURRENT FERTILIZER USE AND SALES SURVEYS PROVIDE ROBUST ANALYTICS ON SPATIAL AND TEMPORAL PROGRESSION OF MARKET DEVELOPMENT

As both a Monitoring and Evaluation (M&E) approach and a means of informing the range of ISFM-related activities proposed herein, the project will conduct recurrent surveys (at least once per year) with a sample of farmers, agricultural input retailers, and agricultural input dealers. For farmers, these surveys will assess fertilizer and ISFM use and predictors thereof (e.g. market availability and knowledge of improved practices). For retailers and their dealers, surveys will assess product offerings, marketing practices, customer base, sales volume, and constraints to growth. Together, these surveys will generate robust analytics on the spatial and temporal progression of market development and impacts associated with fertilizer and ISFM use. Data collection will be conducted jointly with DOA with survey design inputs from NARC Social Sciences Division; digital survey methods will ensure timely data processing to inform the market information systems.

Over the course of the 2016-2017 AWP period, the project will:

2.4.1.1.3.3.1 Conduct a market study to assess the potential size of fertilizer markets across the project districts.

Benchmark(s): Report on Fertilizer Market Potential across NSAF Target Districts,

Activity lead: Socio-economics Lead

Key project staff: Fertilizer Lead, GIS Specialist

Key collaborators: DOA, MOAD

Location(s): 25 Target Districts

Dates: 1 October 2016 – 31 March 2017

The survey conducted in the first year of the project will constitute the project's baseline, with changes documented thereafter used for FTF indicator reporting.

Benchmark(s):	Baseline fertilizer use practices and market-based distribution documented for FTF Districts
Activity lead:	Socio-economics Lead
Key project staff:	GIS Specialist, Fertilizer Lead
Key collaborators:	NARC, DOA
Location(s):	FTF Districts
Dates:	1 Jun 2016 – 31 Mar 2017

ACTIVITY 2.4.1.3.4: YIELD, ECONOMIC, AND HH WELFARE OUTCOMES WITH 'RECOMMENDED' AND EVOLVING FARMER FERTILIZER PRACTICES ASSESSED

The impact of evolving ISFM practices as implemented by farmers will be assessed with special studies to establish yield and economic welfare outcomes associated with ISFM innovations. These studies will emphasize understanding the range of adoption patterns of new ISFM technologies and how results vary depending on other agronomic practices. This activity is scheduled to begin in FY2017 after application of new practices by farmers has started. It is important to note that the project will assess new practices as implemented by farmers with their own resources (i.e. not project-supported technology demonstrations).

ACTIVITY 2.4.1.3.5: SUPPORT MOAD IN SETTING UP A FERTILIZER INFORMATION SYSTEM (FIS)

The project will support SMD and DOA to develop and set up a Fertilizer Information System (FIS) with a mechanism by which information can be disseminated to all related public, private and development partners. NSAF will work with MOAD to develop a joint vision for the FIS to make it useful to all players of Fertilizer value chain. As per the vision document, NSAF, SMD and MOAD will work with the vendor to include the requirements of the client(s) and on sustainability of the portal. All required technical support, including the specs for the portal, identification of the vendor and validation of outputs will be provided by the Project to SMD, which is commissioning the portal under the G2G activity.

Over the course of the 2016-2017 AWP period, the project will:

- 2.4.1.3.5.1 Conduct a survey to understand the requirements of different fertilizer value chain stakeholders for the fertilizer information system;

- 2.4.1.3.5.2 Generate a report describing the system requirements, including content, reporting formats, accessibility, etc. plus FIS vision; and
- 2.4.1. 3.5.3 Begin validation of outputs of the FIS portal prior to its commissioning by SMD and MOAD under the G2G activity.

Benchmark(s): Finalized design of the FIS

Activity lead: Fertilizer Lead

Key project staff: Socio-economics Lead, GIS Specialist

Key collaborators: SMD, MOAD

Location(s): Kathmandu

SUB-IR 2.4.2: PRIVATE SECTOR SERVICE DELIVERY IMPROVED

OBJECTIVE 2.4.2.1: SEED ASSOCIATION CAPACITY STRENGTHENED TO PROVIDE BUSINESS DEVELOPMENT SERVICES AND TO EFFECTIVELY REPRESENT THE SEED INDUSTRY

This project will foster the transition of Nepal's seed sector towards a private-sector led industry in line with the Seed Vision 2025. In support of this transition, the country's domestic seed associations will benefit from opportunities to learn from experts on staff within the project, and through strengthened networks with their regional counterparts in more liberalized economies.

ACTIVITY 2.4.2.1.1: PROVIDE TECHNICAL SUPPORT TO SEAN AND OTHER SEED ASSOCIATIONS TO INCREASE THEIR CAPACITY TO PROVIDE MEMBERS WITH DESIRED SERVICES

SEAN and other seed associations will be strengthened to provide their members with better services related to business development, links to finance (through FNCCI), policy, administration and quality seed production.

Over the course of the 2016-2017 AWP period, the project will:

- 2.4.2.1.1.1 Train SEAN secretariat staff and other seed associations on business development services.

Benchmark(s): At least 5 staff from the Nepal seed associations and other relevant institutions trained

Activity lead: Market Development Specialist
Key project staff: Seed System Lead
Key collaborators: Seed Partners
Location(s): Kathmandu
Dates: 1 Dec 2016 – 31 Mar 2017

ACTIVITY 2.4.2.1.2: FACILITATE MOUs BETWEEN SEAN AND ASIA & PACIFIC SEED ASSOCIATION (APSA), INTERNATIONAL SEED FEDERATION (ISF) AND BANGLADESH SEED ASSOCIATION

Due to similarity in geographical domain and socio-economic conditions, there is great scope for sharing knowledge between Nepalese and other national/regional/international seed associations/enterprises. SEAN, with the support of CIMMYT, has recently signed a memorandum of understanding (MOU) with National Seed Association of India (NSAI). Similar MOUs will be facilitated with the Asia & Pacific Seed Association (APSA), Bangladesh Seed Association (BSA), International Seed Federation (ISF), and others to benefit members of the associations.

Over the course of the 2016-2017 AWP period, the project will:

2.4.2.1.2.1 Broker an MOU between SEAN and APSA

Benchmark(s): MOU signed between SEAN and APSA
Activity lead: Market Development Specialist
Key project staff: Seed System Lead
Key collaborators: Seed partners
Location(s): Kathmandu
Dates: 1 October 2016 – 31 March 2017

ACTIVITY 2.4.2.1.3: FACILITATE EXTENSION OF THE EXISTING TRILATERAL AGREEMENT BETWEEN SOUTH ASIAN ASSOCIATION FOR REGIONAL COOPERATION (SAARC) COUNTRIES ON HARMONIZATION OF RELEASE OF RICE VARIETIES TO MAIZE AND LENTILS

A regional seed cooperation agreement involving India, Bangladesh and Nepal, facilitated by IRRI, is currently speeding up the release and dissemination of rice varieties to benefit farmers in the region. With this seed cooperation system, signed on Oct 18, 2014, a rice variety that is

tested, approved, and released in one country can also be released simultaneously in another, provided that they have the same agro-climatic conditions. The Ministry of Agriculture, Government of India, with the support of the United Nations Food and Agriculture Organization (FAO) and IRRI, desires to extend the seed agreement to include other crops. The project will work with authorities in IRRI, FAO and GON to extend the agreement to cover maize and lentil crops.

Over the course of the 2016-2017 AWP period, the project will:

2.4.2.1.3.1 Consult with stakeholders on the proposed agreement.

Benchmark(s): Consultations held with stakeholders

Activity lead: Dr. US Singh, IRRI

Key project staff: Seed System Lead

Key collaborators: NARC

Location(s): Kathmandu

Dates: 1 Aug 2016 – 31 Mar 2017

**FERTILIZER OBJECTIVE 2.4.2.2: FERTILIZER SUPPLY CHAINS AND MARKETS
STRENGTHENED THROUGH POLICY EXPERIMENTS, INDUSTRY ASSOCIATIONS,
AND PUBLIC-PRIVATE PARTNERSHIPS**

The GON reintroduced fertilizer subsidies for small and marginal farmers in 2009. Outside of the subsidy scheme, fertilizer market development has been complicated by the high volume of Indian fertilizers crossing the border in the Terai districts – particularly when considering the high fertilizer subsidies in India (particularly in the case of N fertilizers), meaning that informally imported Indian fertilizers can easily undercut fertilizers formally imported by Nepalese private sector companies, and can often compete on price with (or even undercut) subsidized fertilizers imported officially by the AICL. This high reliance on informal imports has also led to a range of fertilizer quality and adulteration concerns. Meanwhile, the combination of informal imports with formal government subsidies has reduced the incentive for legal private sector engagement in fertilizer importation and distribution. Clearly, there is significant room for improvement in terms of private sector engagement in fertilizer supply chains, but also a role for more progressive policies therein.

**ACTIVITY 2.4.2.2.1: POLICY SUPPORT PROVIDED TO MOAD TO DRAFT A PROPOSED
FERTILIZER ACT AND TO ASSESS (+ PILOT?) OPTIONS FOR RE-STRUCTURING
SUBSIDY SUPPORT**

At the highest level, the project will provide policy advisory support to MOAD in two areas: first, in the drafting of a Fertilizer Act and, second, for exploring alternatives to the current subsidy

regimes. Support for the formulation of a Fertilizer Act will focus on regulations related to processes for introducing, assessing and approving new fertilizers, dealer registration, import licenses, quality assurance, and related issues. With respect to the issue of subsidy, the project will expose GON policy makers to pragmatic policy options through trainings, case studies, and cross-visits to neighboring countries, including Bangladesh (which deploys fertilizer subsidies, but with the private sector playing a regulated import and a distribution role) and Cambodia (which does not deploy any subsidies and functions on a free market basis, with a public sector regulatory and quality assurance role). It is important to note that the ADS document endorsed by MOAD highlights the spirit and intent of formulating policies that encourage private sector investment. Nevertheless, progress in these areas is contingent on the political will within the ministry to push forward. USAID leadership will play an important role in securing MOAD commitments to an evidence-based policy reform process through G2G support.

The current situation in India is fluid with the government strongly considering a move towards a direct benefit transfer (DBT) scheme that would eliminate fertilizer subsidies. DBT will be rolled out on a trial basis in the fall of 2016 with a focus on districts that boarder Nepal and Bangladesh. If fully implemented, this new policy would eliminate the grey market trade in subsidized fertilizer that currently supplies approximately 80% of the Nepal market, a step that would have profound short and long-term implications. As a first step, the project will convene a strategic roundtable with MOAD and aligned projects (Policy Reform Initiative Project, CSISA) to consider GON responses to a changed policy environment in India.

<i>Benchmark(s):</i>	GON consultations and strategic planning initiated for formulating a Fertilizer Act; response options for a change in India fertilizer policies formulated
<i>Activity lead:</i>	IFDC
<i>Key project staff:</i>	Fertilizer Lead
<i>Key collaborators:</i>	MOAD, CSISA, Policy Reform Initiative Project
<i>Location(s):</i>	Kathmandu
<i>Dates:</i>	1 Apr 2016 – 31 Mar 2017

ACTIVITY 2.4.2.2.2: FORMATION OF THE FERTILIZER ASSOCIATION OF NEPAL (FAN) FACILITATED AND DIALOGUE WITH PUBLIC SECTOR COUNTERPARTS, FNCCI, AND REGIONAL PARTNERS ENCOURAGED

There is currently no fertilizer industry association in Nepal. IFDC has ample experience supporting and forming fertilizer industry associations: for example, in Asia and Europe, IFDC formed the Bangladesh Fertilizer Association, the Albanian Fertilizer and Agricultural Inputs Dealers Association etc. The presence of FAN would allow for coordinated advocacy with the public sector related to fertilizer policies, imports, local blending, and subsidies, for the creation of an ISFM information system, and for the establishment of coordination meetings between FAN, NARC, and SMD. The project will therefore facilitate the formation of FAN to undertake these

activities, incorporating companies involved in both organic and inorganic fertilizer supply chains. Care will be taken to ensure that FAN is linked to FNCCI's Agro-Enterprise Center after formation.

Benchmark(s): Private sector consultations finalized, setting the stage for the formation of FAN by the end of 2017
Activity lead: IFDC
Key project staff: Fertilizer Lead
Key collaborators: MOAD, IFPRI
Location(s): Kathmandu
Dates: 1 Apr 2016 – 31 Mar 2017

CROSS-CUTTING ACTIVITIES

A number of important activities cut across both the Seed and Fertilizer components, particular related to project management. Project management is understood to include a number of activities which cut across all technical components, including those related to ME&L, coordination of the project governance bodies, coordinating administrative processes, stakeholder management (including internal and external communications), and management of project resources, schedule and scope.

MONITORING, EVALUATION AND LEARNING

The Monitoring, Evaluation and Learning (ME&L) system of NSAF project will mainly concentrate on the following issues: (1) reporting on project activities and outputs in a timely manner; (2) tracking progress against expected project outputs; (3) integrating and aligning project activities and staff from diverse institutions more effectively; (4) taking collective actions to refine and improve project design and implementation, as and when/where needed based on the monitoring and evaluation (ME&L) findings; (5) incorporate lessons learned and implications for the project on a continuous basis; and (7) communicating the assessments and learning opportunities to project partners, stakeholders and the donors.

To measure the project performance of the project, the ME&L system suggests detailed list of FTF Standard Indicators both for the seed and fertilized components (Ref. FTF Indicator Handbook, June 2016 version, and the Country Development Cooperation Strategy for fiscal year [FY] 2014-2018). Considering the overall goal and objectives of the project a total of 14 FTF Standard Indicators have been identified for measuring results. For both the components, indicators such as Land and Farmer coverage, Training (both short term and long term) etc. are common.

ACTIVITY MEL#1: DEVELOP ME&L PLAN

NSAF project team will develop and submit the Monitoring and Evaluation Plan to USAID/Nepal for review and approval as per requirements.

Benchmark(s):	ME&L Plan approved and under implementation
Activity lead:	ME&L Specialist
Key project staff:	Seed Systems Lead, Fertilizer Lead, GMP Program Manager
Key collaborators:	USAID
Location(s):	Kathmandu
Dates:	1 April 2016 – 15 July 2016

ACTIVITY MEL#2: DEVELOP DATA COLLECTION SYSTEMS

The ME&L Specialist will lead the team to develop data collection mechanisms and work flows, including templates and ICT tools, which will allow the project team to report on indicators and progress. The ME&L Specialist will consult with KISAN, which reports on many of the same indicators and has established an extensive monitoring system.

Benchmark(s):	Data collection tools designed and deployed
Activity lead:	ME&L Specialist
Key project staff:	Project Coordinator, Seed Lead, Fertilizer Lead, Field Coordinators, Assistant Research Associates
Key collaborators:	n/a
Location(s):	Kathmandu
Dates:	1 July 2016 – 30 September 2016

ACTIVITY MEL#3: TRAIN STAFF AND PARTNERS ON ME&L SYSTEMS

The ME&L Specialist will develop and distribute reference materials and conduct team workshops to ensure project staff and partners understand their respective roles in ensuring a reliable ME&L system. This training will include how to use data collection forms and geo-referencing tools, how to ensure data quality assurance, and backup documentation requirements. Training for new staff will be provided as soon as possible after hiring, and through Project Management Committee (PMC) meetings, as required. Refresher courses will be provided as needed based on data quality issues identified through the DQA process.

Benchmark(s):	All project staff members and key collaborators oriented on how to collect data required for indicator reporting and internal learning
Activity lead:	ME&L Specialist
Key project staff:	Project Coordinator, Seed Lead, Fertilizer Lead, Field Coordinators, Assistant Research Associates
Key collaborators:	Sub grantees
Location(s):	Kathmandu, project field sites
Dates:	1 September 2016 – 31 December 2016

ACTIVITY MEL#4: ROUTINE MONITORING AND DATA COLLECTION FOR FEEDBACK

Project staff will collect required data at least seasonally so as to mitigate data quality or data management issues in good time, and to provide sufficient data for meaningful and reliable analyses.

Benchmark(s): Monitoring data collected seasonally, or more often as appropriate. Data emerging from experiments will be cleaned and finalized prior to the reporting period.

Activity lead: ME&L Specialist

Key project staff: Field Coordinators, Assistant Research Associates

Key collaborators: Sub grantees

Location(s): Kathmandu, project field sites

Dates: 1 September 2016 – 31 March 2017

ACTIVITY MEL#5: SPOT CHECKS AND DATA QUALITY ASSESSMENT (DQA):

The ME&L Specialist will conduct semi-annual internal DQAs to make sure the project's data collection system is on track.

Benchmark(s): Semi-annual internal DQAs conducted before the next annual reporting season

Activity lead: ME&L Specialist

Key project staff: Field Coordinators, Assistant Research Associates

Key collaborators: n/a

Location(s): Kathmandu, project field sites

Dates: 1 January 2017 – 31 March 2017

ACTIVITY MEL#6: GEO-ENABLED DATA COLLECTION DESIGNED AND IMPLEMENTED

The system for collecting geo-referenced data will be established by and staff shall be trained (in coordination with MEL#3), so that data are appropriately analyzed and archived.

Benchmark(s): Geo-enabled data is collected for all components required by USAID.

Activity lead: ME&L Specialist

Key project staff: Geo-spatial Analyst, Field Coordinators, Assistant Research Associates

Key collaborators: n/a

Location(s): Kathmandu, project field sites

Dates: 1 July 2016 – 30 September 2016

ACTIVITY MEL#7: DATA ENTERED INTO USAID’S FTFMS, TRAINET AND AIDTRACKER PLUS DATABASES:

The ME&L Specialist will enter results data into the FTF Monitoring System (FTFMS) annually and training-related data into TraiNet on a quarterly basis. Required information will be uploaded to AIDtracker Plus (AT+) according to the schedule to be defined by USAID.

Benchmark(s): Data entered into the FTFMS, TraiNet and AT+ systems

Activity lead: ME&L Specialist

Key project staff: n/a

Key collaborators: n/a

Location(s): Kathmandu

Dates: 1 September 2016 – 31 March 2017

PROJECT COORDINATION

ACTIVITY PM#1: DEVELOP KEY PROJECT PLANNING DELIVERABLES

CIMMYT, in coordination with its partners, will submit the Year I Annual Work Plan, Emergency Preparedness Plan (EMP), GESI Plan, and Environmental Mitigation and Monitoring Plan (EMMP) for review and approval by USAID/Nepal as per requirements. (NB: The Monitoring and Evaluation Plan is included under MEL#1.)

Benchmark(s): Annual work plan, Disaster Management Plan, Environmental Monitoring and Mitigation Plan, and Gender and Social Inclusion plans submitted and approved

Activity lead: Project Coordinator, Seed Systems Lead, Fertilizer Lead

Key project staff: GMP Program Manager, ME&L specialist

Key collaborators: NARC, seed partners

Location(s): Kathmandu, Nepalgunj

Dates: 1 April 2016 – 15 August 2016

ACTIVITY PM#2: IMPLEMENT BRANDING AND MARKING PLAN:

Attachment D of the NSAF cooperative agreement provides additional details regarding the branding and marketing for this project. In order to ensure that CIMMYT and its partners will adhere to the branding policy as provided to USAID, the Communications Specialist will develop and circulate standard templates and guidelines using multiple channels, including training platforms provided under PM#3, PMC meetings, Project Advisory Committee (PAC) meetings, etc.

Upon recruitment, the Communications Specialist will develop a draft public communications and outreach strategy, for review and finalization in consultation with USAID/Nepal and project partners. Under the strategy, we expect to leverage opportunities, as they arise, to share the project achievements and potential impact. These milestones will be tied to the work plan.

Over the course of the 2016-2017 AWP period, the project will:

PM2.1: Ensure proper project branding

PM2.2: Generate awareness about NSAF

Benchmark(s): Public communications and outreach strategy developed and implemented, including detailed communications work plan; Proper implementation of USAID project branding

Activity lead: Communications Specialist

Key project staff: Project Coordinator, Seed Lead, Fertilizer Lead

Key collaborators: Subgrantees

Location(s): Kathmandu

Dates: 1 April 2017 – 31 March 2017 (ongoing)

ACTIVITY PM#3: IMPLEMENT STAFFING PLAN

CIMMYT and its partners will fully staff their respective components of the project. This includes recruitment, onboarding and orientation of new staff, and establishment of field offices. The Communications Specialist will be onboard by mid-August 2016, while the Project Coordinator, ME&L Specialist, Soil Scientist/Agronomist, and all other locally recruited staff will be onboard by the end of August. All staff should be fully oriented by the end of September.

Benchmark(s): Project staff hired, oriented and brought on board

Activity lead: Seed Systems Lead, Fertilizer Lead

Key project staff: GMP Manager, SIP Manager, SEP Manager, GMP Director, GMP Finance Manager

Key collaborators: CIMMYT HR

Location(s): Kathmandu, Mexico, project sites

Dates: 1 April 2016 – 30 September 2016

ACTIVITY PM#4: CONDUCT PLANNING AND CONSULTATION WORKSHOPS

CIMMYT will conduct a series of small planning workshops with key CIMMYT Project and Program staff and stakeholders in order to gather inputs required for developing key planning documents required at the beginning of the project. Regular seasonal planning meetings will also be organized just ahead of the winter and summer crop cycles.

Benchmark(s):	Seasonal planning meetings held semi-annually
Activity lead:	Project Coordinator
Key project staff:	NSAF project team
Key collaborators:	All technical partners
Location(s):	Kathmandu, Nepalgunj, Kumaltar, Siddhara
Dates:	1 April 2016 – 30 September 2016

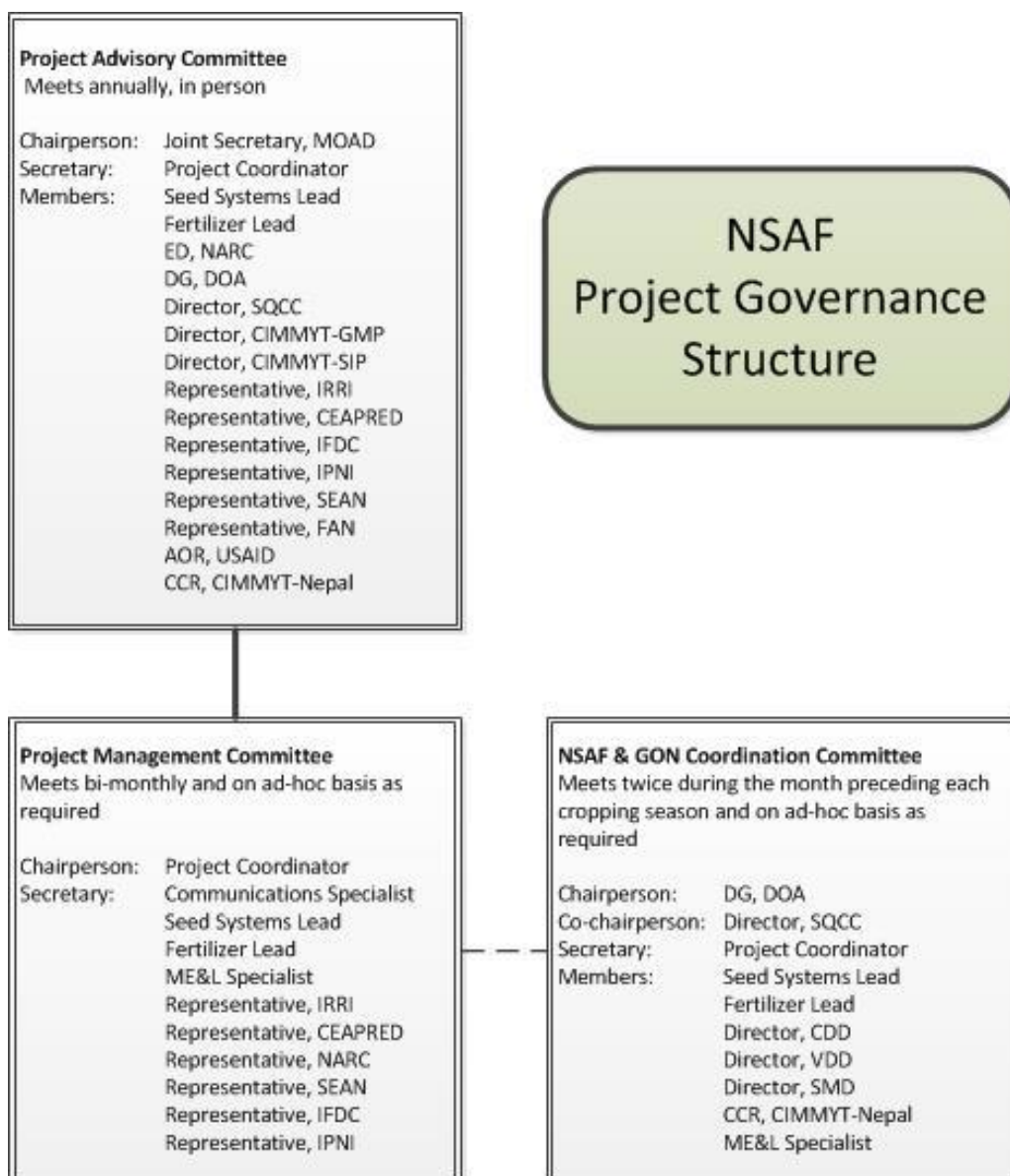
ACTIVITY PM#5: MANAGE PARTNER CONTRACTS

CIMMYT will process subgrant contracts for its partners in alignment with its internal policies and procedures, and ensuring compliance with the terms and conditions of the USAID/NSAF Cooperative Agreement. The GMP Manager will customize the subgrant proposal and contract templates. The Seed Systems and Fertilizer Leads will ensure that planned sub grants are executed in a timely manner and ensure quality of technical deliverables. The Project Coordinator will ensure that disbursements and reporting schedules are duly observed,

Benchmark(s):	All planned sub grants executed and managed in accordance with relevant policies, procedures, and other obligations
Activity lead:	Project Coordinator
Key project staff:	Seed Systems Lead, Fertilizer Lead, GMP Program Manager, SIP Program Manager, GMP Program Finance Manager
Key collaborators:	All sub grantees
Location(s):	Kathmandu, Nairobi, Mexico
Dates:	1 May 2016 – 31 Mar 2017 (ongoing)

ACTIVITY PM#6: ESTABLISH PROJECT GOVERNANCE BODIES

The NSAF governance structure includes a Project Management Committee, Project Advisory Committee, and a Coordination Committee. (See figure below.)



PM6.1: ESTABLISH AND MANAGE PROJECT MANAGEMENT COMMITTEE (PMC)

The Project Management Committee (PMC) will provide the necessary guidance and oversight for day-to-day management and coordination, including managing risks and emergent issues as they arise. Once established, the PMC will meet on a regular basis (bi-monthly virtual meetings) to discuss and get updates on the project activities and bottlenecks, if any, for taking corrective measures, or escalating issues to the Project Advisory Committee (PAC) for intervention, if needed. The initial set-up of the PMC (by the end of August 2016) will require establishing membership and developing a TORs.

Benchmark(s): TOR developed; regular bi-monthly meetings held

Activity lead: Project Coordinator

Key project staff: Seed Systems Lead, Fertilizer Lead, Socio-economics Lead, ME&L Specialist, Communications Specialist

Key collaborators: IRRI, CEAPRED, NARC, SEAN, IFDC, IPNI

Location(s): Kathmandu

Dates: 1 Jun 2016 – 31 Mar 2017 (ongoing)

PM6.2: ESTABLISH AND MANAGE PROJECT ADVISORY COMMITTEE (PAC)

The PAC will be responsible for tracking and assessing project progress against targets, and mitigating concerns or challenges that may be escalated by the PMC or identified by the PAC itself. PAC shall meet in person at least once per year during project annual review and planning meeting, and by web-based interactions as and when required. The initial set-up of the PMC in Year 1 will require establishing membership and developing TORs.

Benchmark(s): TORs developed; 1st annual meeting held

Activity lead: Project Coordinator

Key project staff: Seed Lead, Fertilizer Lead, GMP Director, SIP Director, CIMMYT Country Representative in Nepal

Key collaborators: USAID/Nepal, MOAD, NARC, DOA, SQCC, IRRI, CEAPRED, IFDC, IPNI, SEAN, FAN

Location(s): Kathmandu

Dates: 1 August 2016 – 31 Mar 2017

PM6.3: ESTABLISH COORDINATION COMMITTEE (CC)

The NSAF project will need to effectively coordinate with the Ministry of Agriculture and Development (MoAD), Department of Agriculture (DOA), Nepal Agriculture Research Council (NARC) and Soil Management Directorate (SMD), with the Government-to-Government (G2G) project funded by USAID and provided directly to the Government of Nepal, and with other related United States Government (USG) and USAID projects.

The primary mechanism for coordinating activities between the NSAF project (including its various implementation partner institutions) and various departments of MOAD will be a Coordination Committee (CC) headed by the Director General (DG), DOA and including all heads of departments participating in the project and the key project scientists. This team will meet once in a fortnight, before the crop season (April and October) and once a month

formally to discuss the bottlenecks, if any, in the implementation of joint activities. The initial set-up of the CC in Year I will require establishing membership and developing TORs.

The CC will also be responsible for seeking opportunities to add value to one another's efforts, by leveraging advances in crop science and improved farming practices and seeking to increase adoption rates of appropriate technologies. The FTF Nepal Seed and Fertilizer project will benefit from cross-learning and coordination where appropriate from a number of completed and ongoing USAID/Nepal projects and activities such as IFPRI, KISAN, Cereal Systems Initiative for South Asia (CSISA), Integrated Pest Management-Innovation Lab (IPM-IL), International Maize Improvement Consortium-Asia (IMIC-Asia), and Heat Tolerant Maize for South Asia (HTMA) Project. Effective collaboration with these projects will be essential to maximize synergy and impact on agricultural productivity, income/livelihoods, resilience, food security and nutritional status as a result of joint efforts of the projects.

For additional details, refer also to the *Coordination with Related Initiatives* section, below.

Benchmark(s):	Semimonthly meetings before the crop seasons (April and October) and monthly meetings otherwise; TOR developed
Activity lead:	Project Coordinator
Key project staff:	Seed Systems Lead, Fertilizer Lead, CIMMYT Country Representative (CCR) – Nepal, ME&L Specialist
Key collaborators:	DOA, SQCC, CDD, VDD, SMD
Location(s):	Kathmandu
Dates:	1 July 2016 – 31 March 2017

ACTIVITY PM#7 DEVELOP AND IMPLEMENT PROCUREMENT PLAN

The project team will need to establish internal processes and approval thresholds for managing procurement, in compliance with applicable institutional and donor procedures, guidelines, policies, and conditions. In the first year, pending recruitment of project staff, the Seed Systems and Fertilizer Leads will need to ensure timely procurement of budgeted fixed assets and other items to ensure operations, including processing necessary budget approvals.

Benchmark(s):	Project fixed assets procured on time; project procurement process / guidelines documented and shared with project team
Activity lead:	Seed Systems Lead (pending recruitment of Project Coordinator)
Key project staff:	Fertilizer Lead, CIMMYT-Nepal administrative staff, Program Managers of GMP and SIP
Key collaborators:	n/a

Location(s): Kathmandu

Dates: 1 July 2016 – 30 September 2016

KEY ASSUMPTIONS

The success of any project, including NSAF, depends on the commitment of the partners in achieving the deliverables in a timely and coordinated manner. The following are the key assumptions for NSAF:

1. Changes in the Government of Nepal or those that might happen within the partner organizations/institutions, concomitantly changes in policies, do not affect the project: There is a moderate risk or probability that this factor could endanger the success of the project, although this project is built on long-standing partnerships or based on agreements CIMMYT and other non-government partners have with the government and national partners.
2. The various stakeholders accept and commit themselves to the project goal, vision of success and objectives: There is a low risk or probability that this factor will endanger the project's success because the key partners have already been engaged during project formulation and are committed to the goal and vision of NSAF. The project partners value the scope and significance of NSAF to the Nepalese smallholder farmers, and are committed to its effective implementation. The pace of activity will be such as to maintain the partner engagement.
3. Public and private-sector partners have capacity, infrastructure and resources in general to actively contribute to the project objectives as planned. The project has a limited budget for infrastructure strengthening and will effectively leverage from existing resources and the G2G funding.
4. The public-private partnerships (PPP), critical for attaining the product delivery, succeed in NSAF. The partnerships built over the last several years with various R&D partners in South Asia, including Nepal, provide us with the confidence that the PPP envisioned in the project will succeed, as strong emphasis is given to: a) creating a shared vision; b) agreement on respective roles and responsibilities; and c) dealing with issues/bottlenecks, as they arise, transparently and proactively.
5. An enabling environment exists in the seed and fertilizer sectors of Nepal to promote private sector engagement. The Seed Vision 2025 and ADS clearly recognize the role of the private sector in strengthening agricultural input supply and distribution in Nepal, especially with regard to seed and fertilizer.

6. A conducive policy environment exists with regard to SMTA and Nagoya Protocol for free exchange of germplasm.
7. Equitable access of the technologies deployed through NSAF especially to women, youth and socially disadvantaged groups will be ensured by the development/business partners.
8. Smallholder farmers' have sufficient capacity to purchase improved inputs, especially seed and fertilizers, to improve their productivity, climate resilience and incomes.
9. The Government of Nepal will remain committed to its engagement with the NSAF and G2G projects.
10. Funding from the donor to both NSAF and G2G will remain stable throughout the duration of the project to achieve the project goals and vision effectively.

RISK MANAGEMENT PLAN

The Project Coordinator is responsible for ensuring that project risks are prioritized and managed in a systematic way, by maintaining and making available to the project team a Risk Log, ensuring that each risk is assigned an “owner”, and holding risk owners accountable for implementing an appropriate management strategy for their assigned risks. As a matter of course, the PMC will reserve a regular slot on their meeting agendas for a review of the Risk Log in order to keep an eye on any status updates on risks, identify any new or emerging risks, decide whether any corrective action may be necessary, and/or escalate any issues to the PAC if required.

Annex C: Project Risks and Management Strategies provides an initial list of identified project risks; it is expected to grow and evolve over time.

COORDINATION WITH RELATED INITIATIVES

RELATIONSHIP TO FTF NEPAL PROGRAMS

In order to develop complementary efforts and add value to each other's efforts, the project will leverage advances in crop science and improved farming practices and seek to increase adoption rates of appropriate technologies. The FTF Nepal Seed and Fertilizer project will benefit from cross-learning and coordination where appropriate from a number of completed and ongoing USAID/Nepal projects and activities such as IFPRI, KISAN, Cereal Systems Initiative for South Asia (CSISA), Integrated Pest Management-Innovation Lab (IPM-IL), International Maize Improvement Consortium-Asia (IMIC-Asia), and Heat Stress Resilient Maize

for South Asia (HTMA) Project. Effective collaboration with these projects will be essential to maximize synergy and impact on agricultural productivity, income/livelihoods, resilience, food security and nutritional status as a result of joint efforts of the projects.

HEAT TOLERANT MAIZE FOR ASIA (HTMA) PROJECT

HTMA through a public-private partnership is currently working with public and private institutions in four countries in South Asia (Bangladesh, Nepal, India and Pakistan) for effectively developing and deploying heat stress resilient, high-yielding maize hybrids with potential impact on the maize-dependent and climate change vulnerable regions in South Asia. The project is working on accelerated development and deployment of heat stress tolerant maize varieties in Nepal in close collaboration with NARC and private seed companies. HTMA is also undertaking field-based phenotyping in several relevant sites across South Asia, as well as under technically demanding managed-stress screens, both of which are often beyond the capacity of individual breeding programs. HTMA is currently testing on a large-scale four heat tolerant maize hybrids on farmers' fields in Nepal through both NARC and private seed companies. The FTF Nepal Seed and Fertilizer project will leverage on the progress made by HTMA, especially public-private partnerships for dissemination of climate resilient maize varieties in appropriate agro-ecologies of Nepal.

IRRI: ACCELERATING THE ADOPTION OF STRESS-TOLERANT RICE VARIETIES BY SMALLHOLDER FARMERS IN NEPAL

IRRI is currently working on deployment of seed of stress tolerant rice varieties in the 20 FTF Nepal ZOI districts. These drought-tolerant and submergence-tolerant rice varieties were developed under the Stress-Tolerant Rice for Africa and South Asia (STRASA). Specifically, the project is supporting a network of 28 partners in Nepal involving MOAD, SQCC, local government bodies, NARC and its research centers, universities, private seed companies, and NGOs. It also assists NARC scientists and seed producers to take part in training activities provided by IRRI (e.g., breeding, PVS, quality seed production and storage, etc.). Therefore, the FTF Nepal Seed and Fertilizer project will leverage on the progress made by IRRI's current and previous projects, especially in deploying stress tolerant rice varieties in targeted agro-ecologies.

NEPAL STRATEGY SUPPORT PROGRAM (NSSP)

This is a policy reform initiative project for agricultural development and food security in Nepal implemented by IFPRI. The policies include, among other areas: strengthening Nepal's seed system and market; reducing fertilizer subsidies and improving fertilizer use efficiency; introduction of agribusiness promotion (Contract Farming) Act and its implementation; and engagement of Nepal business forum in agricultural policy reforms. In addition to the activities stated above, the IFPRI project is flexible to include demand-driven policy reform activities related to some other emerging areas, like agricultural market management, crop/livestock

insurances etc. during implementation of the project. Hence, linking the FTF Nepal Seed and Fertilizer project with this project has paramount importance to create synergy in creating an enabling seed and fertilizer business environment. This is particularly critical to stimulate increased private sector investment in the seed and fertilizer sectors to increase agricultural productivity.

FOOD FOR PEACE COMMUNITY RESILIENCE PROGRAM (FFP-CRP)

The Community Resilience Program is composed of two projects, PAHAL and SABAL. Mercy Corps is implementing a five-year FFP development assistance program known as PAHAL in selected VDCs in 14 districts in the Mid and Far West Regions. It has a goal of building resilience and reducing food insecurity among vulnerable populations through livelihood strengthening, agriculture and WASH interventions. SABAL is implemented by Save the Children and will run through 2019. SABAL will work in six districts in the Central and Eastern Regions to deliver an integrated package of livelihood, agriculture, and health and nutrition interventions. The FTF Nepal Seed and Fertilizer project will collaborate with the FFP-CRP project in making seed and ISFM technologies equitably available to project beneficiaries.

KNOWLEDGE-BASED INTEGRATED SUSTAINABLE AGRICULTURE AND NUTRITION (KISAN) PROJECT

KISAN is a five-year USAID project in Nepal. The KISAN project works with the GON to sustainably improve food security and increase incomes. The main objective of the project is to improve the quality and availability of agro-inputs like seeds, fertilizers, and credit for farmers; improve the capacity of agriculture extension workers and service providers to deliver services more efficiently; facilitate improved and sustainable agriculture production practices and technologies including production of nutritiously diverse vegetables, fruits and backyard poultry, and application of post-harvest technologies and practices at the farm level; and improve market efficiency and farmer access to markets. Since KISAN has a wider reach of individual and farmers' group beneficiaries in all the 20 FTF Nepal ZOI districts, close coordination of NSAF project activities with KISAN will ensure equitable and wider reach of seeds and ISFM technologies.

CEREAL SYSTEMS INITIATIVE FOR SOUTH ASIA-NEPAL (CSISA-NP)

CSISA-NP is promoting high-yielding, climate-smart rice, lentil and maize varieties, in addition to other technologies focused to reduce the labor burden for women farmers. CSISA-NP's technical priorities for rice, lentils, and maize are addressing the key production challenges that are critical to achieve sustainably intensified production systems. CSISA-NP is strengthening the seed sector for rice, lentils, and maize and markedly increasing the availability of locally-adapted crop and resource management technologies as well as the capacity for partners to bring these innovations to farmers. Technologies that have been tested and ready for dissemination by CSISA would be available to seed and ISFM businesses in the seed and ISFM value chains.

INTEGRATED PEST MANAGEMENT-INNOVATION LAB (IPM-IL)

The project supports increased adoption and transfer of IPM technologies for high-value vegetables across two districts in the Mid-West. The project focuses also on the FTF Nepal Seed and Fertilizer project focused vegetable crops, namely tomato and cauliflower. The IPM-IL project works mainly with the Knowledge Based Integrated Agriculture and Nutrition (KISAN) project. The KISAN project is scaling up the work of IPM-IL across 20 districts in the hills and Terai of the Mid-West and Far-West regions. IPM-IL is implemented by Virginia Tech in partnership with International Development Enterprises (IDE), Center for Agricultural and Environmental Policy, Research and Development (CEAPRED) and NARC. Technologies that have been tested and ready for dissemination by IPM-IL would be available to seed and ISFM businesses in the seed and ISFM value chains.

DEVELOPMENT CREDIT AUTHORITY (DCA)

As a part of its FTF initiative, USAID/Nepal has taken initial steps to increase the access of rural populations and businesses to financial services through a DCA mechanism (loan guarantee). The Mission has decided to pursue a DCA to support the development of the agriculture sector by stimulating agribusiness and agriculture lending. DCA guarantees leverage Mission funds to help provide access to credit (i.e., microcredit and bank loans) for groups that have difficulty obtaining capital to start or expand enterprises (whether they be farmers, businesses or others). The FTF Nepal Seed and Fertilizer project will facilitate business collaboration between seed and fertilizer project partners and DCA.

INTERNATIONAL MAIZE IMPROVEMENT CONSORTIUM-ASIA (IMIC-ASIA)

CIMMYT has created an opportunity for seed companies involved in maize seed business in Asia to be part of a regional initiative through the IMIC-Asia. Developing maize hybrids is a venture that requires elite sources of germplasm (breeding starts that carry the desired genetic variability), skilled personnel (training), an evaluation network (collaboration) and resources. Through IMIC-Asia, CIMMYT offers its members: maize inbred lines having traits prioritized by the consortium members, training on areas that are of high utility to the seed company partners, and a platform for evaluation of maize hybrids in the South Asia. IMIC-Asia also working with two Nepalese seed companies for commercializing CIMMYT maize hybrids. Six yellow maize hybrids each are at large-scale farmer field trials. In addition, two white hybrids have also been licensed to these two companies for registration and commercialization. CIMMYT can provide to the seed companies specific hybrid combinations on exclusive licensing under the Standard Material Transfer Agreement (STMA). The FTF Nepal Seed and Fertilizer project will establish strong linkages with IMIC-Asia for the development and distribution of inbred lines and identification of marketable CIMMYT hybrids, training, and evaluation of maize hybrids in Nepal. This also will benefit the project in creating wider networks across the region and would enable Nepali private businesses greater access to technologies and realistic seed business models in the region.

COORDINATION WITH MOAD

To coordinate the efforts and investments in the essential elements of crop production – seed and fertilizer, several measures were highlighted in the 20-year Agricultural Development Strategy (ADS) recently approved by the GON. ADS recognizes the need for holistic approaches that include science-led innovations, crop diversification options for income generation, strengthened input systems, mechanization to cope with outmigration and an aging agricultural workforce, and enterprise development efforts to create new jobs and to extend essential support services to large numbers of farmers. Other than ADS, the GON has developed a *Seed Vision 2025*⁵ and recently (September 14-15, 2015) organized a Seed Summit to develop an action plan for seed⁶. As a result of the emergence of forward-looking policy environment and with coordinated actions of MOAD, development partners, and the private sector, the emergence of robust seed and fertilizer value chains is possible.

USAID has planned a companion Government-to-Government (G2G) mechanism with MOAD which will complement the proposed activities under this project. Activities under the G2G implementation mechanism will undergo a separate approval process. This Project Description and budget includes only activities to be implemented by CIMMYT. Hence, CIMMYT is in active consultation with MOAD to co-design activities and to develop a common vision of success. Some of what is proposed herein is subject to co-investment with G2G support. These cases are noted accordingly as ‘+ G2G’. Also refer to Annex B: Project Year 1 Baseline which details the project’s activity plan and timeline for implementation.

COORDINATION WITH OTHER DONOR FUNDED PROJECTS

The FTF Nepal Seed and Fertilizer project is focused on 25 districts, 3 field crops, and 3 high value vegetables on seed and fertilizer value chain development. The project focuses on development of appropriate technologies, supply of technologies, both in time and at affordable cost and development of business entities for supply of seed and fertilizers in target areas. The results achieved and experience gained will be available for replicating in new territories and also on newer crops, focused by the projects funded by other agencies. Linkages will be established with the projects like the High Mountain Agriculture and Livelihood Improvement project, the Raising Incomes of Small and Marginal Farmers project, and the Agriculture Sector Development Program funded by ADB; the Improved Seeds for Farmers project, Western Uplands Poverty Alleviation Project and High-Value Agriculture project funded by IFAD; the Project for Agriculture Commercialization and Trade (PACT) funded by the World Bank; and

⁵ Ministry of Agriculture Development (2013), National Seed Vision 2013-2025, Kathmandu

⁶ Proceedings of the National Seed Summit, 14-15 Sept 2015, Kathmandu, Nepal.

other similar projects funded by the British Department for International Development (DFID) and other developmental agencies.

ANNEXES

ANNEX A: FY 2016 TARGETS BY INDICATOR

Indicator	Data Source/ Collection Method	Data	Data Disaggregation	Baseline	Year 1 (Apr-Sept 2016)
Number of farmers and others who have applied improved technologies or management practices with USG assistance (EG.3.2-17; formerly 4.5.2[5])	Recurrent survey of beneficiaries, activity records or farm records; Year 1 survey serves as project baseline	Total number of beneficiaries	Total (Seed)	TBD	Baseline
			SP (Seed)	TBD	Baseline
			CBSP groups (Seed)	TBD	Baseline
			Farmers (Seed)	TBD	Baseline
			Total (Fert)	TBD	Baseline
			Farmers (Fert)	TBD	Baseline
			Maize	TBD	Baseline
			Rice	TBD	Baseline
			Lentil	TBD	Baseline
			Veg	TBD	Baseline
			N/A	TBD	Baseline
		% of total	Female	TBD	Baseline
			DSGs	TBD	Baseline
Farmer's gross margin per hectare obtained with USG assistance (EG.3-6; formerly 4.5.[16])	Farmer recurrent surveys; data collection through producer organizations or farm records, routine activity records; Year 1 survey serves as project baseline	% increase over previous year in Gross margin (to be given in US\$/ha, while reporting)	Seed- Maize	TBD	Baseline
			Seed -Rice	TBD	Baseline
			Seed- Lentil	TBD	Baseline
			Seed- Veg	TBD	Baseline
			Fert - Maize	TBD	Baseline
			Fert - Rice	TBD	Baseline
			Fert - Lentil	TBD	Baseline
			Fert - Veg	TBD	Baseline
		% of total surveyed	Female	TBD	Baseline
			Joint	TBD	Baseline
			Assoc.-applied	TBD	Baseline
			DSGs	TBD	Baseline
	Farmer recurrent surveys; data collection through producer	Area in ha	Total -Seed	TBD	Baseline
		% of total	Seed- Maize	TBD	Baseline

Indicator	Data Source/ Collection Method	Data	Data Disaggregation	Baseline	Year 1 (Apr-Sept 2016)
Number of hectares of land under improved technologies or management practices with USG assistance (EG.3.2-18; formerly 4.5.2[2])	organizations or farm records, routine activity records; Year 1 survey serves as project baseline		Seed -Rice	TBD	Baseline
			Seed- Lentil	TBD	Baseline
			Seed- Veg	TBD	Baseline
		Area in ha	Total- Fert	TBD	Baseline
		% of total	Fert-Maize	TBD	Baseline
			Fert- Rice	TBD	Baseline
			Fert-Lentil	TBD	Baseline
			Fert- Veg	TBD	Baseline
			Female	TBD	Baseline
			Joint	TBD	Baseline
			Assoc.-applied	TBD	Baseline
			DSGs	TBD	Baseline
Number of for-profit private enterprises, producers organizations, water users associations, women's groups, trade and business associations and community-based organizations (CBOs) that applied improved organization-level technologies or management practices with USG assistance (EG.3.2-20; formerly 4.5.2[42])	Beneficiary MSME recurrent surveys; data collection through MSME routine activity records;	Number of organizations	Total	N/A	10
			SP	N/A	10
			CBSPS	N/A	
Number of technologies or management practices under research, under field testing, or made available for transfer as a result of USG assistance (EG.3.2-7; formerly 4.5.2[39])	Activity records	Number of technologies	Seed- Phase 1	N/A	40
			Seed Phase II	N/A	
			Seed Phase III	N/A	
			Fert-Phase 1	N/A	48
			Fert-Phase II	N/A	
			Fert Phase III	N/A	
Number of public-private partnerships formed as a result of USG assistance (EG.3.2-5; formerly 4.5.2[12])	Observation and records of partnerships created	Number of PPP formed	Ag. Production	N/A	2
			Post-harvest	N/A	
			Multiple	N/A	
			Other	N/A	
Number of individuals who have received USG-supported degree-granting agricultural sector productivity or food security training (EG.3.2-2; formerly 4.5.2[6])	Direct counting through NSAF training records	Individuals receiving training,	Total	N/A	0
			Female	N/A	
			DSGs	N/A	
			New	N/A	
			Continue	N/A	
			Seed-MSMEs	N/A	30

Indicator	Data Source/ Collection Method	Data	Data Disaggregation	Baseline	Year 1 (Apr-Sept 2016)
Number of individuals who have received USG supported short-term agricultural sector productivity or food security training (EG.3.2-1; formerly 4.5.2[7])	Direct counting through ODK-based digital data collection-NSAF training records	Individuals receiving training,	Seed-Govt	N/A	23
			Seed-Farmers	N/A	
			Seed-Civil Soc.	N/A	
			Fert-Govt	N/A	65
			Fert-MSMEs	N/A	
			Fert-Farmers	N/A	
			Fert-Civil Soc.	N/A	
		Percent of total	Female	N/A	30%
Number of for-profit private enterprises, producers organizations, water users associations, women's groups, trade and business associations, and community-based organizations (CBOs) receiving USG food security related organizational development assistance (EG.3.2-4; formerly 4.5.2[11])	Activity records of training and various USG assistance- Activity records of training and various USG assistance	Number of private organisations	DSGs	N/A	20%
			Seed Companies	N/A	10
			CBSPS	N/A	
			NGOs	N/A	
			New	N/A	10
Number of micro, small, and medium enterprises (MSMEs), including farmers, receiving agricultural-related credit as a result of USG assistance (EG.3.2-3; formerly 4.5.2[30])	Activity records, MSME financial records, etc.	Number of MSMEs that received USG assistance and accessed loans / % of total	Continue	N/A	
			Micro	N/A	
			Small	N/A	
			Medium	N/A	
			Female-owned	N/A	
			Jointly-owned	N/A	
Number of firms receiving USG-funded technical assistance for improving business performance (EG.5.2-1; replaces 4.5.2[37])	Training participant records	number of MSMEs that received business development services	DSG-owned	N/A	
			Seed-Formal	N/A	
			Seed-Informal	N/A	
			Fert-Formal	N/A	25
			Fert-Informal	N/A	
Value of small-holder incremental sales generated with USG assistance (EG.3.2-19; formerly 4.5.2[23])	Beneficiary MSME recurrent surveys; data collection through routine activity records; Year 1 survey serves as project baseline	% increase over previous year	New	N/A	25
			Continue	N/A	
			Maize	TBD	Baseline
			Rice	TBD	Baseline
			Lentil	TBD	Baseline
			Veg	TBD	Baseline
			Other	TBD	Baseline

ANNEX B: PROJECT YEAR I BASELINE GANTT CHART

Task Name	2nd Quarter			3rd Quarter			4th Quarter			1st Quarter		
	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
IR2.1: Agriculture-based income increased												
Sub-IR2.1.1: Agricultural productivity increased												
2.1.1.1.1: Seed testing, monitoring and deployment systems strengthened												
2.1.1.1.1.1: Fine-map target regions in nepal (in terms of agro- ecological zones, cropping systems, and market potential)												
2.1.1.1.1.1.1: Generate a GIS extrapolation of the target agro-ecological zones												
2.1.1.1.1.1.2: Map out the prevalent cropping systems												
2.1.1.1.1.1.3: Map out the seed market potential for target crops												
2.1.1.1.1.1.4: Identify the key market segments for target crops												
2.1.1.1.1.2: Characterize market segments and define product portfolios												
2.1.1.1.1.2.1: Characterize three key market segments for rice & Maize and 2 for Lentil & vegetables												
2.1.1.1.1.2.2: Define product portfolio for each crop segment and a varietal selection indicators												
2.1.1.1.1.3: Test technologies at Phase 1 (TRPs & MLTs)												
2.1.1.1.1.3.1 Evaluate improved pre-commercial/released hybrids/OPVs from diverse sources at TRPs based on varietal selection indicators defined for product portfolios												
2.1.1.1.1.3.1.1: Evaluate Varieties at TRPS as per product portfolio - Kharif 2017												
2.1.1.1.1.3.1.2: Evaluate Varieties at TRPS as per product portfolio - Rabi 2017												
2.1.1.1.1.3.2 Conduct joint monitoring of the trials and report on the best-bet hybrids/OPVs in specific target crops/agro-ecologies												
2.1.1.1.1.3.2.1: Joint monitoring of trials and report on selected Varieties: 2017 Kharif												
2.1.1.1.1.3.2.1: Joint monitoring of trials and report on selected Varieties: 2017 Rabi												
2.1.1.1.1.3.3 Select the top 20 best-bet hybrids/OPVs for MLT stage of testing												
2.1.1.1.1.3.3.1: Select top 20 best bet hybrids/varieties for MLT stage of testing - 2017 Kharif												
2.1.1.1.1.3.3.2: Select top 20 best bet hybrids/varieties for MLT stage of testing - 2016 Rabi												
2.1.1.1.1.3.4: Conduct 5 Multilocation Trials of varieties for each market segment												
2.1.1.1.1.3.4.1: Conduct 5 Multilocation Trials of varieties for each market segment - dry season												
2.1.1.1.1.3.4.2: Conduct 5 Multilocation Trials of varieties for each market segment - wet season												
2.1.1.1.1.3.5: Conduct joint monitoring of trials and report on selected Varieties												
2.1.1.1.1.3.5.1: Joint monitoring of trials and report on selected Varieties - Kharif 2017												
2.1.1.1.1.3.5.2: Joint monitoring of trials and report on selected Varieties - Rabi 2017												

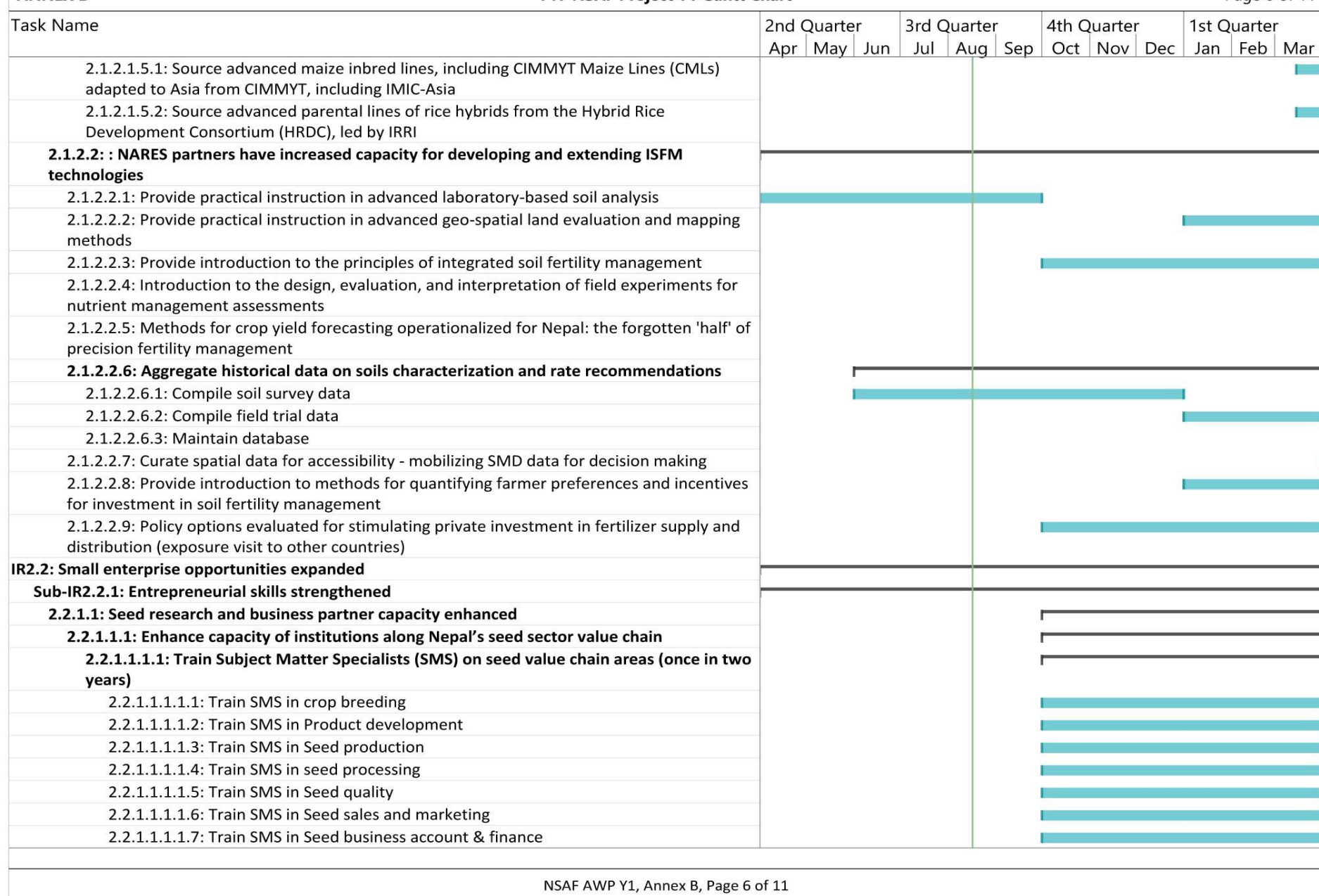
ANNEX B		FTF NSAF Project Y1 Gantt Chart												Page 2 of 11				
Task Name		2nd Quarter			3rd Quarter			4th Quarter			1st Quarter							
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar					
2.1.1.1.3.6: Select The best 6 hybrids/OPVs for Farmer field testing (FFT)																		
2.1.1.1.3.6.1: Select The best 6 hybrids/OPVs for Farmer field testing (FFT) - 2017 dry season																		
2.1.1.1.3.6.2: Select The best 6 hybrids/OPVs for Farmer field testing (FFT) - 2017 wet season																		
2.1.1.1.4: Large-scale testing of high potential TRP technologies in target ecologies in participatory mode- Phase II																		
2.1.1.1.4.1: Large-scale testing of high potential TRP technologies in target ecologies in participatory mode (Phase II testing): 2016 wet season																		
2.1.1.1.4.1.1: Conduct FFT at 20 locations per market segment, involving NARC, Seed partners, NGOs, DADOs.																		
2.1.1.1.4.1.2: Joint monitoring of 25% trials and report on selected Varieties																		
2.1.1.1.4.1.3: Select the best 1 hybrids/varieties for on-farm demonstrations (OFD)																		
2.1.1.1.4.1.4: Conduct OFD at 50 locations per segment involving NARC, Seed partners, NGOs, DADOs etc.																		
2.1.1.1.4.1.5: Joint monitoring of 10% trials and report on selected Varieties																		
2.1.1.1.4.1.6: Conduct Field days at 10% OFD locations																		
2.1.1.1.4.2: Large-scale testing of high potential TRP technologies in target ecologies in participatory mode (Phase II testing): 2017 dry season																		
2.1.1.1.4.2.1: Conduct FFT at 20 locations per market segment, involving NARC, Seed partners, NGOs, DADOs.																		
2.1.1.1.4.2.2: Joint monitoring of 25% trials and report on selected Varieties																		
2.1.1.1.4.2.3: Select the best 1 hybrids/varieties for on-farm demonstrations (OFD)																		
2.1.1.1.4.2.4: Conduct OFD at 50 locations per segment involving NARC, Seed partners, NGOs, DADOs etc.																		
2.1.1.1.4.2.5: Joint monitoring of 10% trials and report on selected Varieties																		
2.1.1.1.4.2.6: Conduct Field days at 10% OFD locations																		
2.1.1.1.5: Release & deployment of technologies																		
2.1.1.1.5.1 Allocate/license varieties to national program/seed company partners																		
2.1.1.1.5.1.1: Allocate/license varieties to national program/seed company partners 2017B																		
2.1.1.1.5.1.2: Allocate/license varieties to national program/seed company partners - 2018A																		
2.1.1.1.5.2: Submission of proposal for Registration/ release of cultivars																		
2.1.1.1.5.2.1: Submission of proposal for Registration/ release of cultivars																		

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Task Name	2nd Quarter			3rd Quarter			4th Quarter			1st Quarter		
	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
2.1.1.1.5.2.2: Submission of proposal for Registration/ release of cultivars												
2.1.1.1.6: Conduct seed production research on hybrids and scale up identified OPV seed for trials												
2.1.1.1.6.1: Seed production research on parents best-bet hybrids and Opvs												
2.1.1.1.6.1.1: Conduct Seed production research on parental lines of FFT stage maize hybrids in 3 sites												
2.1.1.1.6.1.2: Conduct Seed production research on parental lines of FFT stage rice hybrids in 3 sites												
2.1.1.1.6.1.3: Publish SPR data												
2.1.1.1.6.2: Scale-up identified OPV seed for trials												
2.1.1.1.6.2.1: Multiply the seed of selected OPVs for MLT												
2.1.1.1.6.2.2: Multiply the seed of selected OPVs for FFT												
2.1.1.1.6.2.3: Multiply the seed of selected OPVs for OFD												
2.1.1.1.6.2.4: Multiply the Breeder seed of selected OPVs in FFT												
2.1.1.1.6.2.5: Multiply the Foundation seed of selected OPVs in OFD												
2.1.1.1.6.2.6: Multiply the Breeder & Foundation seed of Released OPVs												
2.1.1.1.7: Testing of Germplasm/parental lines												
2.1.1.1.7.1: Evaluate parental lines for combining ability, abiotic and biotic stress resilience and portfolio traits												
2.1.1.1.7.1.1: Evaluate parental lines for combining ability, abiotic and biotic stress resilience and portfolio traits - 2017A												
2.1.1.1.7.1.2: Evaluate parental lines for combining ability, abiotic and biotic stress resilience and portfolio traits - 2017B												
2.1.1.1.7.2: Select ten elite parental lines and distribute for developing new hybrids												
2.1.1.1.7.2.1: Select ten elite parental lines and distribute for developing new hybrids: 2017A												
2.1.1.1.7.2.2: Select ten elite parental lines and distribute for developing new hybrids: 2017B												
2.1.1.2: Production and the farmer's adoption of quality seeds increased												
2.1.1.2.1: Mapping of suitable seed production & processing zones for target crops												
2.1.1.2.1.1: Fine-map mega-environment of Nepal to identify suitable, areas and seasons for seed production of hybrid maize, Hybrid rice, vegetables												
2.1.1.2.1.2: Validate the perspective zones based on pilot testing and economic analysis.												
2.1.1.2.1.3: Publish recommendation on seed production zones in Nepal												
2.1.1.2.2: Improving the capacity of seed processing facilities and storage structures												
2.1.1.2.2.1: Technical Support to CDD to establish & maintain seed processing & seed storage facilities, under G2G funding												

Task Name	2nd Quarter			3rd Quarter			4th Quarter			1st Quarter		
	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
2.1.1.2.2.2: Provide training to CDD staff on seed processing and storage												
2.1.1.2.3: Strengthen breeder and foundation seed capacity in target crops												
2.1.1.2.3.1: Provide technical support to SQCC to establish processes for sustainable production of source seed of pre-released and newly released varieties, under G2G funding												
2.1.1.2.4: Strengthening of International Seed Testing Association (ISTA)-accredited quality control lab under SQCC/RSTL under CDD												
2.1.1.2.4.1: Technical support to SQCC & CDD to strengthening the Seed quality programs , under G2G funding												
2.1.1.2.4.2: Train staff of SQCC & CDD Seed quality assurance and efficient use and maintenance of seed quality control facilities												
2.1.1.3: Domain-specific ISFM recommendations developed and deployed												
2.1.1.3.1: Identify and characterize reference sites for soil, cropping system, farmer management, and socioeconomic factors												
2.1.1.3.2: Conduct on-farm experiments for nutrient (macro, secondary, and micro) and lime responses at reference sites												
2.1.1.3.3: Spatial patterns of indigenous soil fertility and crop responses to fertilizers evaluated for recommendation domain delineation												
2.1.1.3.4: Yield prediction (e.g. satellite, 'factor'-based, and weather forecast) methods assessed for 'fine tuning' domain-based recommendations												
2.1.1.3.5: Scenario analysis conducted to refine recommendations based on farmer resource endowments, risk, and investment preferences at nested scales												
2.1.1.3.6: Participatory on-farm validation of domain-based fertility recommendations, including GxExM (refine based on SEED screening trial results)												
2.1.1.3.7: Simple, multi-media extension messages and materials developed for different farmer groups including women												
2.1.1.3.8: The importance of micronutrient fertilization for crop quality determined for tomato and cauliflower												
2.1.1.4 : Efficient fertilizer application technologies evaluated and commercialized												
2.1.1.4.1: Evaluate precision broadcasting and other efficient fertilizer application methods for technical performance and farmer acceptance												
2.1.1.4.2: Employ market development strategies with trade associations and service providers to out-scale precision application technologies												
Sub-IR2.1.2: Value Chains Strengthened												
2.1.2.1. Seed system management scaled through researchers, seed companies, dealers, retailers, seed producers and development agencies. (Note: also linked with 2.1.1.3)												
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Task Name	2nd Quarter			3rd Quarter			4th Quarter			1st Quarter		
	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
2.1.2.1.1: Establish germplasm sharing system among NARC, Seed Partners, International Research and seed agencies												
2.1.2.1.1.1: Generate a document on a tripartite mechanism between private seed companies, NARC and CGIAR institutes for germplasm access and capacity building of breeding programs												
2.1.2.1.1.2: Establish an NSAF-PPP Coordination Cell to oversee the tripartite PPP mechanism												
2.1.2.1.1.3: Enable NARC to become a member of two consortia (IMIC-Asia and HRDC)												
2.1.2.1.1.4 Design a mechanism for licensing improved hybrids/OPVs from NARC to local seed companies												
2.1.2.1.1.5: Develop policy documents establishing the principles of germplasm exchange and licensing to be implemented by NARC												
2.1.2.1.2: Establish Market Oriented research Consultative forum (MORCF) of researchers, input suppliers and end users												
2.1.2.1.2.1: Design Market Oriented research Consultative forum (MORCF)												
2.1.2.1.2.2: Meet semi-annually and document recommendations												
2.1.2.1.3: Establish Technology Refinement Platform (TRP) to screen sourced Hybrids & OPVs												
2.1.2.1.3.1: Establish TRP at RARS, Khajura, Nepalgunj,												
2.1.2.1.3.2: Establish TRP at NARC Kumualtar.												
2.1.2.1.3.3: Establish TRP at NSC Siddahara, Arghakhanchi												
2.1.2.1.4: Source high-yielding, climate-resilient, improved hybrids and opvs for testing												
2.1.2.1.4.1: Provide a list of improved pre-commercial/released hybrids/OPVs in the target crops to be sourced nationally/internationally by NARC												
2.1.2.1.4.2: Receive seed of the identified rice hybrids/OPVs from NARC and other project partners for constituting the trials												
2.1.2.1.4.3: Receive seed of identified maize hybrids/OPVs from NARC and other project partners for constituting the trials												
2.1.2.1.4.4: Receive seed of identified improved lentil OPVs from NARC and other project partners for constituting the trials												
2.1.2.1.4.5: Receive seed of identified improved hybrids/OPVs of high-value vegetables (tomato, onion and cauliflower) from NARC and other project partners for constituting the trials												
2.1.2.1.5: Source parental lines in Hybrid crops												

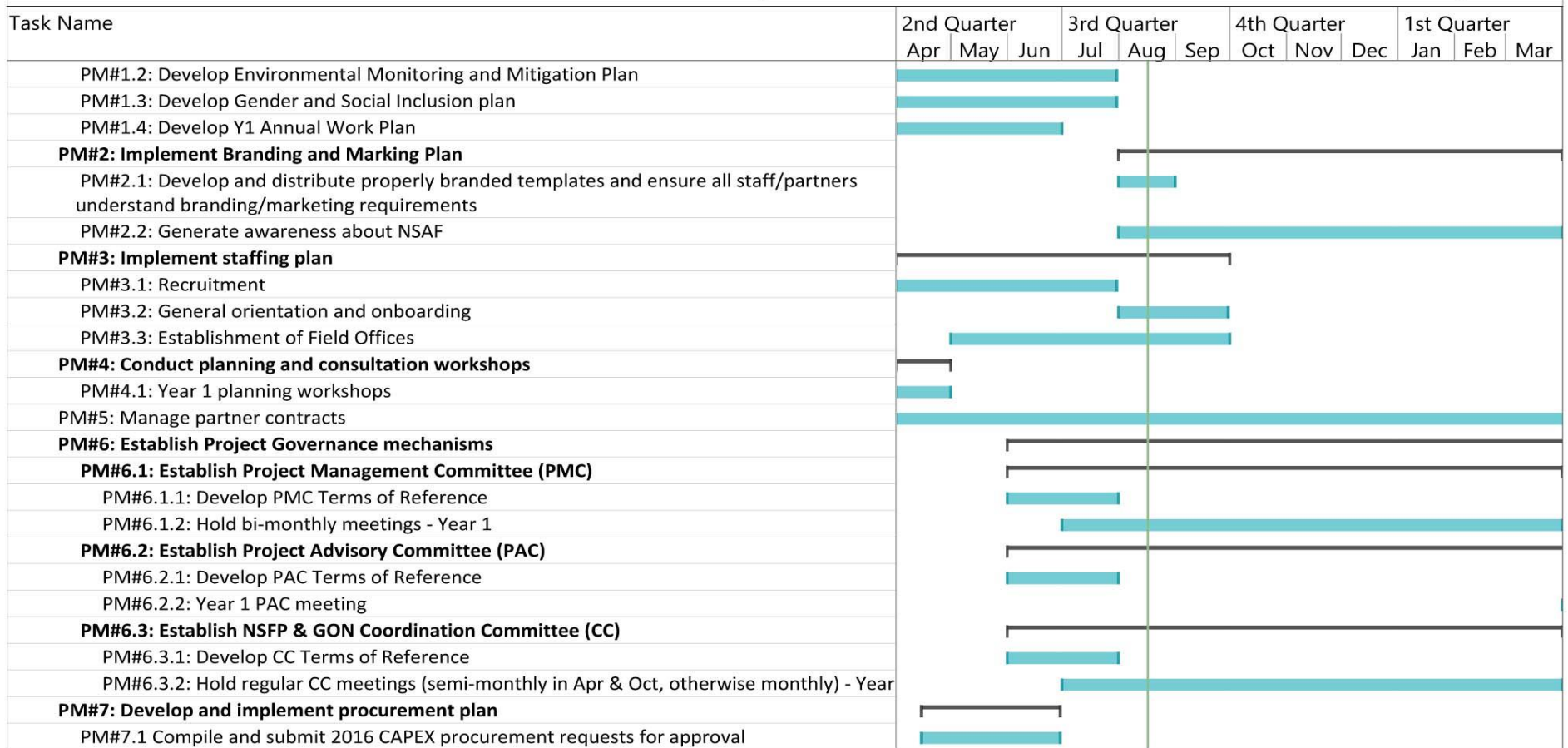


Task Name	2nd Quarter			3rd Quarter			4th Quarter			1st Quarter		
	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
2.2.1.1.1.2: Train CBSPs, NGOs and seed partners in seed production, business development / marketing (pre-season)												
2.2.1.1.1.3: Train R&D staff on precision phenotyping for abiotic & biotic stress tolerance & quality traits												
2.2.1.1.1.3.1: Workshop on precision phenotyping of product folio traits in Maize (once in 2 years)												
2.2.1.1.1.3.2: Workshop on precision phenotyping of product folio traits in Rice												
2.2.1.1.1.3.3: Workshop on precision phenotyping of product folio traits in Lentil												
2.2.1.1.1.3.4: Workshop on precision phenotyping of product folio traits in vegetables												
2.2.1.1.1.4: Support Curriculum development for short courses on seed system												
2.2.1.1.1.4.1: Develop the curriculum for certificate and diploma courses in Seed technology												
2.2.1.1.1.4.2: Develop the curriculum for certificate and diploma courses on Seed business management												
2.2.1.1.1.5: Support NARC scientists on Masters / Doctoral program in Hybrid breeding & Seed technology												
2.2.1.1.1.5.1: One Fellowship for Masters / Doctoral program in Hybrid rice breeding												
2.2.1.1.1.5.2: One Fellowship for Masters / Doctoral program in Hybrid maize breeding												
2.2.1.1.1.5.3: One Fellowship for Masters / Doctoral program in Hybrid vegetable breeding												
2.2.1.1.1.5.4: One Fellowship for Masters / Doctoral program in seed technology												
2.2.1.1.1.6: Develop Technical troubleshooting modules (TSM) for Advisory services of partners												
2.2.1.1.1.6.1: Develop TSM for Maize												
2.2.1.1.1.6.2: Develop TSM for Rice												
2.2.1.1.1.6.3: Develop TSM for Lentil												
2.2.1.1.1.6.4: Develop TSM for Tomato												
2.2.1.1.1.6.5: Develop TSM for Onion												
2.2.1.1.1.6.6: Develop TSM for cauliflower												
2.2.1.1.1.6.7: Train CDD(MOAD) staff on online farm advisory												
2.2.1.1.1.7: Train seed partners on business capacity development												
2.2.1.1.1.7.1: Workshop on good seed business practices												
2.2.1.2: ISFM and the '4rs' of fertilizer management scaled through dealers, retailers, cooperatives, development partners, and backstopped by extension												

Task Name	2nd Quarter			3rd Quarter			4th Quarter			1st Quarter		
	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
2.2.1.2.1: trainings on ISFM and the 4Rs of fertilizer management conducted for scaling intermediaries (retailers, cooperative leadership, extension, DPS)												
2.2.1.2.2: New market actors for fertilizer												
2.2.1.2.3: Support partner-led ISFM demonstrations												
2.2.1.2.4: Engage social marketing techniques												
2.2.1.2.5: Support dealer certification												
Sub-IR2.2.2: Access to financial and business services increased												
2.2.2.1: Access to financial and business services by seed enterprises increased												
2.2.2.1.1 Mentoring for development of business plan to source working / growth capital from financial institutions												
2.2.2.1.1.1: Provide mentorship to seed company partners for developing business plans												
2.2.2.1.1.2: Facilitate linkages between seed partners and financial institutions												
2.2.2.1.1.3: Shortlist innovation / venture fund for entrepreneur development												
2.2.2.1.2: Raising technical capacity of financial institutions to assess agriculture business loan opportunities for DCA partners												
2.2.2.1.2.1: Organize a workshop to increase awareness among the financial institutions about technical and financial aspects of the seed industry (once in 2 years)												
2.2.2.1.3: Promote business opportunities in Nepal seed sector to increase investment												
2.2.2.1.3.1: Design of 'Nepal Seed Business Opportunities' document												
2.2.2.1.3.2: Facilitate interactive platforms for soliciting investments including joint ventures at national level												
2.2.2.1.3.3: Facilitating MOAD to organize Seed Business Summit to solicit investments												
2.2.2.2: Access to financial and business services by fertilizer enterprises increased												
2.2.2.2.1 Access to credit (including linking to DCA) increased to support new fertilizer investments by the private sector												
IR2.4: Economic growth policy and performance improved												
Sub-IR2.4.1: Increased access to markets												
2.4.1.1: Seed demand and market characterization studies completed and support public and private investments												
2.4.1.1.1: Assess stakeholders' perceptions on hybrids/opvs identified by the project (indicators disaggregated by different socio-economic parameters, including farm size, ethnicity and gender)												
2.4.1.1.2: Conduct a study of seed market potential in target districts, and a recurrent survey for seed market and use cases												
2.4.1.1.3: Recurrent seed use and sales surveys provide robust analytics on spatial and temporal progression of market development												
2.4.1.1.3.1: Conduct Year 1 seed use and sales survey												

Task Name	2nd Quarter			3rd Quarter			4th Quarter			1st Quarter		
	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
2.4.1.1.3.2: Yield, economic, and HH welfare outcomes with use of improved and quality seed												
2.4.1.2: Market-responsiveness of seed development and distribution enhanced through a national Seed Sector Information System												
2.4.1.2.1: Support MOAD in setting up a seed sector information system (SSIS)												
2.4.1.2.1.1: Conduct a survey to understand the requirements of different seed system value chain stakeholders for the seed information system												
2.4.1.2.1.2: Generate a report describing the system requirements, including content, reporting formats, accessibility, etc. plus SSIS vision												
2.4.1.2.1.3: Validate outputs of the SSIS portal prior to its commissioning by SQCC and MOAD under the G2G activity												
2.4.1.2.1.4: Train on web portal & applications												
2.4.1.3: Fertilizer demand, welfare outcomes, and market characterization studies completed and support public and private investments												
2.4.1.3.1: Willingness to pay for fertilizers assessed as a function of agronomic 'literacy', fertilizer price / quality, and farmer type - including risk perception												
2.4.1.3.2: Functional farmer typologies developed with respect to incentives and capacity for intensification of maize, rice, and wheat												
2.4.1.3.3: Recurrent fertilizer use and sales surveys provide robust analytics on spatial and temporal progression of market development												
2.4.1.3.3.1: Conduct Year 1 fertilizer use and sales survey												
2.4.1.3.4: Yield, economic, and household welfare outcomes with 'recommended' and evolving farmer fertilizer practices assessed												
2.4.1.3.5: Support MOAD in setting up a Fertilizer Information System (FIS)												
2.4.2: Private sector service delivery improved												
2.4.2.1: Seed association capacity strengthened to provide business development services and to effectively represent the seed industry												
2.4.2.1.1: provide technical support to SEAN and other seed associations to increase their capacity to provide members with desired services												
2.4.2.1.1.1: Train SEAN secretariat staff in business development services												
2.4.2.1.2: Facilitate MOUs between SEAN and Asia & Pacific Seed Association (APSA), International Seed Federation (ISF) and Bangladesh Seed Association (BSA)												
2.4.2.1.2.1: Broker an MOU between SEAN and APSA												
2.4.2.1.3: Facilitate extension of the existing trilateral agreement between South Asian Association for Regional Cooperation (SAARC) countries on harmonization of release of rice varieties to maize and lentils												
2.4.2.1.3.1: Consult with stakeholders on the proposed agreement												

Task Name	2nd Quarter			3rd Quarter			4th Quarter			1st Quarter		
	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
2.4.2.1.3.2: Draft agreement for maize and lentil												
2.4.2.1.3.3: Facilitate implementation of agreement following official approval												
2.4.2.2: Fertilizer supply chains and markets strengthened through private sector engagement, policy experiments, and public-private partnerships												
2.4.2.2.1: Policy support provided to MoAD to draft a proposed Fertilizer Act and to assess (+ pilot?) options for re-structuring subsidy support												
2.4.2.2.2: Convene a strategic roundtable with MOAD and aligned projects (Policy Reform Initiative Project, CSISA) to consider GON responses to a changed policy environment in India												
2.4.2.2.3: Facilitate formation of the Fertilizer Association of Nepal (FAN) and dialogue with public sector counterparts, FNCCI, and regional partners												
Cross-cutting activities												
MEL: Monitoring, Evaluation and Learning												
MEL#1: Develop ME&L plan												
MEL#2: Develop data collection and management systems												
MEL#3: Train staff and partners on ME&L systems												
MEL#4: Routine monitoring and data collection for feedback												
MEL#5: Spot checks and Data Quality Assessment (DQA)												
MEL#5.1: Y1 semiannual internal DQA												
MEL#5.2: Y1 annual internal DQA												
MEL#6: Geo-enabled data collection designed and implemented												
MEL#7: Data entered into USAID databases												
MEL#7.1: Data entered into FTFMS												
MEL#7.1.1: Year 1 data uploaded												
MEL#7.2: Data entered into TraiNet system												
MEL#7.2.1: 2016 Q2 data uploaded												
MEL#7.2.2: 2016 Q3 data uploaded												
MEL#7.2.3: 2016 Q4 data uploaded												
MEL#7.2.4: 2017 Q1 data uploaded												
MEL#7.3: Data entered into AT+												
PM: Project Management Activities												
PM#1: Develop key project planning deliverables												
PM#1.1: Develop Disaster Management Plan												



ANNEX C: PROJECT RISKS AND MANAGEMENT STRATEGIES

This is a list of project risks that have so far been identified as of the date of submission of this AWP. This is part of a risk management tool that will be regularly maintained for the life of the project. It is the responsibility of the Project Coordinator to ensure that risks are systematically identified and appropriately managed by a designated “risk owner”, with input from the project team and stakeholders, first-level oversight by the PMC and second-level oversight by the PAC.

Risk	Likelihood	Potential Impact	Owner	Management Strategy
Political instability derails project progress	Medium	Medium	Project Coordinator	Proactively engage with national partners, and the donor for contingency plans; Personnel re-assignment plan established to ensure business continuity.
Natural calamities (including drought, flood, earthquake, etc.), accident or equipment malfunction results in damage to or loss of trial	Medium	Medium	Seed Lead, Fertilizer Lead	Trials are conducted at multiple locations, reducing potential impact of natural calamities at specific locations
End users do not see value of improved varieties deployed through the project	Low	High	Seed Lead	FFT's and feedback from end-users will be integral part of product selection before deployment. Strong promotional activities will follow during deployment.
Poor data recovery from partners on seed production statistics and other key indicators	Medium	Medium	Seed Lead	Provide well-targeted training and backstopping. Engage regularly with partners to promote timely and accurate reporting.

Risk	Likelihood	Potential Impact	Owner	Management Strategy
Lack of or inadequate implementation of enabling regulatory framework within the country for effective seed delivery	Medium	Medium	Seed Lead	Proactively engage with national regulatory agencies to ensure that quality seed reaches the target beneficiaries. NSAF will also work with regulatory agencies to refine testing networks to more effectively prioritize performance criteria for smallholder farmers.
Seed market fluctuations/variability	Medium	Medium	Seed Lead	Develop strategies and communicate effectively with partners to identify and prioritize product targets and to strengthen partner capacity to address specific market needs.
Limited investment to develop capacity and collaboration	Medium	High	Project Coordinator	Create forums for data/information exchange and decision making to enable high-level decision makers within national ministries to see the potential impact of NSAF, and the need for increased government investment on seed and fertilizer sectors.
Lack of suitable policy or existing legal framework impede the movement and use of improved germplasm (especially hybrids) and render public-private partnerships less effective.	Medium	High	Seed Lead	Establish collaborative partnerships to create an enabling environment; clarify implications of SMTA on partner use of germplasm in breeding programs.
National partners do not see value or are unwilling to adopt new technologies, methodologies, approaches and germplasm.	Medium	High	Seed Lead; Fertilizer Lead	Strong relationships with partner institutions will be maintained and further enhanced through NSAF in an effort to best serve the needs and address the constraints of Nepalese partners and farmers. The primary anticipated barrier to uptake of new tools and technologies is lack of adequate awareness (which will be addressed through an effective communications strategy) rather than lack of perceived value or unwillingness to adopt new technologies / approaches.

Risk	Likelihood	Potential Impact	Owner	Management Strategy
Improved germplasm products and technologies identified by the project for scale-up and delivery will not attract public-private partnerships.	Low	High	Seed Lead; Fertilizer Lead	NSAF-identified technologies are expected to be of significant interest to the private sector; however, other barriers (e.g., finance for scale-up, risk-taking capacity, difficulties in reaching the beneficiaries etc.) may preclude their uptake. NSAF will lay emphasis on outreach and promotional activities and will provide well-organized data to support private sector decision making on technology scale-up and marketing.
Indian fertilizer policy changes occur, thereby rapidly reducing gray-market fertilizer imports into Nepal, causing acute shortages and potentially creating leakages of subsidized fertilizer to travel from Nepal to India	Medium	High	Fertilizer Lead, Government Partners	Initiate consultations with the government on policy options and responses, as well as contingency planning.
The India–Nepal border closes to trade	Medium	High	Fertilizer Lead	Consult with public and private sectors about the possibilities of pre-booking fertilizer and keeping a core reserve of fertilizer supply in country.
Lack of interest among private sector partners to import fertilizer at the full market price	Medium	Medium–High	Fertilizer Lead	Educating private sector partners on willingness to pay and latent demand in Nepal for high-quality fertilizers that are available on time.
Resistance from parastatals to private sector entry into fertilizer trade at scale in Nepal	Medium–High	Medium–High	Fertilizer Lead	Accelerate the formation of the Fertilizer Association of Nepal in order to protect and advance the private sector interests through engagement with the Government of Nepal.

ANNEX D: YEAR I BUDGET

Estimated project costs for Year I AWP period (1ST April 2016 – 31st March, 2017).

Budget Summary:

Cost Category		Year I (1 Apr '16 – 31 Mar '17)
a.	Personnel	517,340
b.	Fringe Benefits	383,207
c.	Travel	89,500
d.	Equipment	105,000
e.	Supplies	191,450
f.	Contractual/Program Activities/ Consultants	1,427,155
g.	Construction	-
h.	Other Direct Costs	73,425
i.	Total Direct Charges	2,787,077
j.	Indirect Charges	316,114
k.	CGIAR System Cost	62,064
l.	TOTALS	3,165,254

Detailed budget

Description	Unit	No. of Units	Unit Cost (USD)	Year Estimate	I
Salaries					
International Staff					
Project Coordinator (Shared)	Year	0.75	66,026	49,519	
Seed System Lead (Seed)	Year	1.00	77,758	77,758	
Market Development Specialist (Seed)	Year	0.75	50,000	37,500	
Maize Breeder (Seed)	Year	0.10	90,835	9,084	
Maize Physiologist (Seed)	Year	0.20	79,384	15,877	
Maize Pathologist (Seed)	Year	0.10	78,375	7,838	
Lead Socio-economist (Shared)	Year	0.56	66,026	37,139	
Soil Fertility Lead (Fertilizer)	Year	0.75	66,026	49,520	
Director GMP- Oversight (Seed)	Year	0.03	162,750	4,883	
Director SIP- Oversight (Fertilizer)	Year	0.05	107,000	5,350	
Agronomist (Fertilizer)	Year	0.05	86,000	4,300	
Program Manager - GMP (Seed)	Year	0.03	54,733	1,642	
Program Finance Manager - GMP (Seed)	Year	0.03	63,402	1,902	
Program Manager - SIP (Fertilizer)	Year	0.05	75,000	3,750	
Subtotal International Staff salaries				306,061	
National Staff					
M&E Specialist (Shared)	Year	1	20,917	14,015	
Communication Specialist (Shared)	Year	1	20,917	14,015	
Seed System Specialist (Seed)	Year	1	25,000	18,750	

Description	Unit	No. of Units	Unit Cost (USD)	Year Estimate	I
Lead agronomist (Fertilizer)	Year	1	20,917	20,917	
Field coordinator- Trials (Seed)	Year	3	10,409	23,420	
Agronomist and Breeder (Seed)	Year	2	10,409	15,614	
Research Associates (Fertilizer)	Year	2	10,409	20,818	
Socio-economists (Fertilizer)	Year	1	10,409	10,409	
Geo-spatial Analyst (Fertilizer)	Year	1	10,409	10,409	
Field Technicians (4 Seed +8 Fertilizer)	Year	12	4,164	45,810	
Drivers (Seed)	Year	2	2,602	3,903	
Drivers cum field assistants (Fertilizer)	Year	2	3,300	6,600	
Accounts Assistant (Fertilizer)	Year	1	6,600	6,600	

Subtotal National Staff salaries **211,279**

Subtotal Salaries	517,340
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Fringe Benefits

Internationally Recruited Staff (@ 90% on cost)

Project Coordinator (Shared)	Year	1.00	45,000	44,567	
Seed System Lead (Seed)	Year	1.00	69,982	69,982	
Market Development Specialist (Shared)	Year	1.00	45,000	33,750	
Maize Breeder (Seed)	Year	0.10	81,752	8,175	
Maize Physiologist (Seed)	Year	0.20	71,446	14,289	
Maize Pathologist (Seed)	Year	0.10	70,538	7,054	
Lead Socio-economist (Shared)	Year	0.75	59,423	33,425	
Soil Fertility Lead (Fertilizer)	Year	1.00	59,423	44,568	
Director GMP- Oversight (Seed)	Year	0.05	146,475	4,395	
Director SIP- Oversight (Fertilizer)	Year	0.05	96,300	4,815	
Agronomist (Fertilizer)	Year	0.05	77,400	3,870	
Program Manager-GMP (Seed)	Year	0.05	49,260	1,478	
Program Accountant-GMP (Seed)	Year	0.05	57,062	1,712	
Project Manager - SIP (Fertilizer)	Year	0.05	67,500	3,375	
Total International Staff				275,455	

Locally-Recruited Staff (@ 51% on cost)

M&E Specialist (Shared)	Year	1	10,668	7,147	
Communication Specialist (Shared)	Year	1	10,668	7,147	
Seed System Specialist (Seed)	Year	1	12,750	9,563	
Lead agronomist (Fertilizer)	Year	1	10,668	10,668	
Field coordinator- Trials (Seed)	Year	3	5,309	11,944	
Agronomist and Breeder (Seed)	Year	3	5,309	7,963	
Research Associates (Fertilizer)	Year	2	5,309	10,617	
Socio-economists (Shared)	Year	1	5,309	5,309	
Geo-spatial Analyst (Fertilizer)	Year	1	5,309	5,309	
Field Technicians (5 Seed + 9 Fertilizer)	Year	14	2,124	23,363	
Drivers (Shared)	Year	2	1,327	1,991	
Drivers cum field assistants (Fertilizer)	Year	2	1,683	3,366	
Accounts Assistant (Shared)	Year	1	3,366	3,366	
Total National Staff				107,752	

Subtotal Fringe Benefits	383,207
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Travel (See travel budget sheet for additional info)

Description	Unit	No. of Units	Unit Cost (USD)	Year Estimate	I
International Travel	Total	1	25,900	25,900	
Local and Domestic Travel	Total	1	63,600	63,600	
Subtotal Travel				89,500	
Equipment					
Vehicles (Restricted Item-Waiver Required)					
General duty trucks	Each	7	15,000	105,000	
Subtotal Equipment				105,000	
Supplies					
General Equipment (\$1 to \$4999)					
Field equipment (Seed)	Each	1	20,200	20,200	
Computers for project staff	Each	25	1,600	40,000	
Printers cum photocopiers	Each	10	900	9,000	
Mobile data collection	Each	15	350	5,250	
Soil sampling equipment	Each	2	2,500	5,000	
Off-road motorcycles	Each	10	2,000	20,000	
Office Rents and Supplies					
SARO support services	Each	1	42,220	42,220	
Rent	Each	12	2,585	31,020	
Office supplies	Each	12	1,563	18,760	
Subtotal Supplies				191,450	
Program Activities					
Seed Component:					
IR# 1: Establishment of seed system platform...				63,000	
IR#2: Strengthen testing, monitoring...				56,375	
IR#3: Capacity building of research and business...				35,600	
IR# 4: Increasing market-responsiveness....				54,000	
IR# 5: Increasing financial access....				18,750	
IR# 6: Building associations and forums...				10,950	
IR# 7: Strengthen seed system...				5,000	
Fertilizer component:					
IR#8: NARES partners increase capacity...				30,000	
IR#9: Domain-specific ISFM recommendations....				22,500	
IR#10: Efficient fertilizer application tech....				22,500	
IR#11: Improved knowledge of market dynamics....				40,000	
IR#12: Supply chains and markets strengthened...				15,000	
IR#13: ISFM and 4Rs of management scaled....				15,000	
Subtotal Program Activities				388,675	
Contractual					
Consultants					
National consultant				9,000	
Expatriate consultant - fertilizer				10,000	
Subtotal Consultants				19,000	

Description	Unit	No. of Units	Unit Cost (USD)	Year Estimate	I
Subgrants					
IRRI - Seed	Each	1.00	234,885	234,885	
NARC - Seed	Each	1.00	131,484	131,484	
Seed partners	Each	1.00	173,325	173,325	
CEAPRED	Each	1.00	64,186	64,186	
NARC - Fertilizer	Each	1.00	35,000	35,000	
IFDC	Each	1.00	297,600	297,600	
IPNI	Each	1.00	50,000	50,000	
IRRI - Fertilizer	Each	1.00	33,000	33,000	
ICRAF	Each	1.00	-	-	
Sub-Total Subgrants				1,019,480	
Subtotal Contractual				1,427,155	
Other Direct Costs					
Vehicle operational and maintenance costs	Each	1	10,000	10,000	
Communications	Each	1	42,990	42,990	
Meetings	Each	1	17,800	17,800	
External review	Each	0			
Contract management fee	Each	12	219.6	2,635	
Subtotal Other Direct Costs				73,425	
Total Direct Costs				2,787,077	
Indirect Costs					
CIMMYT overhead on direct charges	Indirect	15%	1,767,597	265,140	
CIMMYT overhead on sub-agreements	Indirect	5%	1,019,480	50,974	
CG consortia charges	Indirect	2.0%	3,103,190	62,064	
Total Indirect Costs				378,178	
Grand Total				3,165,254	

ANNEX E: YEAR I SUBGRANT DETAILS

The following table provides details regarding subgranted activities and budgets planned for the current AWP period (1 April 2016 – 31 March 2017).

No.	Institutions	Deliverables	2016 budget
1	National Maize Research Program, NARC	Supplying 50 pre-commercial/released hybrids/OPVs of maize (Activity 2.1.1.1.3)	\$825
		Monitoring of TRP and MLT trials of Maize (Activity 2.1.1.2.2 and 2.1.1.2.3)	\$ 6188
2	National Rice Research Program, NARC	Supplying 25 pre-commercial/released hybrids/OPVs of rice (Activity 2.1.1.1.3)	\$550
		Monitoring of TRP and MLT trials of Rice (Activity 2.1.1.2.2 and 2.1.1.2.3)	\$ 6188
3	National Grain Legume Program, NARC	supplying 50 OPVs of lentils (Activity 2.1.1.1.3)	
		Monitoring of TRP and MLT trials of Lentil (Activity 2.1.1.2.2 and 2.1.1.2.3)	\$ 6188
4	Horticulture Research Division, NARC	Supplying 10 pre-commercial/released hybrids/OPVs each of Tomato, Onion and Cauliflower (Activity 2.1.1.1.3)	\$600
		Monitoring of TRP and MLT trials of Vegetables (Activity 2.1.1.2.2 and 2.1.1.2.3)	\$ 6188
5	South Asia Lead, IRRI	Establishing TRP facilities (Activity 2.1.1.1.2)	\$ 20000
		Supplying 75 pre-commercial/released hybrids/OPVs of Rice (Activity 2.1.1.1.3)	\$16600
		At least 100 advanced inbred/parental lines each sourced for rice (Activity 2.1.1.1.4)	
		Monitoring of TRP and MLT trials of Rice (Activity 2.1.1.2.2 and 2.1.1.2.3)	\$118265
		Developing Trouble shooting module for Rice (Sub-Activity 2.2.1.1.2.6)	\$10000
		Facilitating the extension of the existing trilateral agreement on rice to other target crops (Activity 2.4.2.1.3)	\$5000
6	Dr Parvesh Chandana, IRRI, India	Fine-map target regions in terms of agro-ecological zones (Activity 2.1.1.2.1)	\$40000
		Mapping of suitable seed production and processing zones for target crops (Activity 2.1.1.3.1)	\$25000

No.	Institutions	Deliverables	2016 budget
7	CEAPRED, Kathmandu	Supplying 40 pre-commercial/released hybrids/OPVs each of Tomato, Onion and Cauliflower (Activity 2.1.1.1.3)	\$9266
		Monitoring of TRP and MLT trials of Vegetables (Activity 2.1.1.2.2 and 2.1.1.2.3)	\$ 44960
		Develop Technical troubleshooting modules (TSM) for Tomato and Onion (Sub-Activity 2.2.1.1.2.6)	\$10000
8	Nepal Agricultural Research Institute, Kumulatar, Nepal,	Conduct 12 trials in TRP (2 trials/crop) and 6 MLTs (1 per crop) (Activity 2.1.1.2.3)	\$27968
9	National Seed company Limited, Kathmandu	Providing land for establishing the TRP (Activity 2.1.1.2.2)	
		Conduct 12 trials in TRP (2 trials/crop) and 6 MLTs (1 per crop) (Activity 2.1.1.2.3)	\$24825
10	RARS Khajura, Nepal	Conduct 14 MLTs (Activity 2.1.1.2.3)	\$ 21333
11	RARS Doti, Nepal	Conduct 11 MLTs (Activity 2.1.1.2.3)	\$18468
12	Agricultural Research Station, Surkhet, Nepal	Conduct 11 MLTs (Activity 2.1.1.2.3)	\$ 18468
13	Agricultural Research Station, Dhaloka, Nepal	Conduct 11 MLTs (Activity 2.1.1.2.3)	\$ 18468
14	Unique Seed company, Dhangadi, Kailali	Conduct 11 MLTs (Activity 2.1.1.2.3)	\$14850
15	Lumbini Seed Company (Pvt.) Ltd. Bhairawa, Nepal	Conduct 11 MLTs (Activity 2.1.1.2.3)	\$14850
16	Suryodaya Multipurpose Cooperative, Bela, Dang, Nepal	Conduct 11 MLTs (Activity 2.1.1.2.3)	\$14850
17	GATE Nepal Private Limited, Nepalgunj, Nepal	Conduct 11 MLTs (Activity 2.1.1.2.3)	\$14850

No.	Institutions	Deliverables	2016 budget
18	Panchasakti Biu Company Pvt Ltd., Dhangadi, Nepal	Conduct 11 MLTs (Activity 2.1.1.2.3)	\$14850
19	SEAN Seed Service Center Limited, Thankot, Nepal	Conduct 11 MLTs (Activity 2.1.1.2.3)	\$14850
20	Hariyali Community Seed Company (Pvt.) Ltd. Kabre, Nepal	Conduct 11 MLTs (Activity 2.1.1.2.3)	\$14850
21	Karma seeds Company (Pvt) Ltd, Kathmandu, Nepal	Conduct 11 MLTs (Activity 2.1.1.2.3)	\$14850
22	Gorkha Seed company, Kathmandu	Conduct 11 MLTs (Activity 2.1.1.2.3)	\$14850
23	Everest Seed company, Kathamndu, Nepal	Conduct 11 MLTs (Activity 2.1.1.2.3)	\$14850